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THE CANADA FARMER



VOL. I. No. 2.

TORONTO, CANADA, FEBRUARY 15, 1869.

NEW SERIES.

The Field.

Sugar and the Sugar Beet.

Sugar has become one of the necessities of civilized life, and the problem of how to produce it in sufficient quantity to supply the increasing demand and yet keep the price at a figure that will bring it within the reach of the poor as well as the rich, has engaged the attention of many inquiring minds. Until within the past few years the great dependence for the production of sugar has been upon the sugar cane (*Saccharum Officinatum*), a plant that can be grown to perfection only in tropical climes under a burning sun that precludes the use of civilized labour, and the crop is one of the most exhausting to the soil of any that can be grown. No wonder then that the once rich soils of the West India Islands and Brazil, the alluvial flats of Louisiana and Alabama, and to some extent the rich plains of India, have become exhausted, and no longer yield large and profitable crops of cane, even with cheap enforced labour.

But another plant has been discovered to possess all the requisites for the successful production of sugar, and one, too, that is not dependent on a great amount of heat and moisture for its successful growth, and can therefore be grown in temperate climates by civilized labour. We allude to the Sugar Beet, which is now extensively grown in Europe for the manufacture of sugar. France was the first to introduce the culture of the Sugar Beet, and it has now become a staple crop of that country, which not only manufactures enough sugar to supply the entire home demand for that article, but also exports a considerable quantity, which is yearly increasing. Belgium and Holland also grow it extensively, though rather as food for milch cows in winter than for the manufacture of sugar. It has been grown to a considerable extent by German settlers in Illinois, and they have found it profitable to

manufacture sugar from it. England also is now awakening to the importance to be derived from the growth of the Sugar Beet, as a means of bringing cheap sugar within the reach of her vast hives of working labourers; and capitalists there are turning their attention to the erection of suitable sugar manufactories, preparatory to the introduction of the Sugar Beet as one of the staple crops of the country. In the *Gardener's Chronicle* of November 7, 1868, we find a very interesting account of a trial of the sugar beet culture, from which we make some extracts:—

Mr. Duncan, of Mincing Lane, last winter invited the farmers around Lavenham, Suffolk, to grow for him a supply of Sugar Beet at 18s per ton, to be delivered at his new factory close to the railway station there. The proposal excited much local and general interest, and the prospects of the new industry were discussed by many of the daily papers and agricultural journals. The result was, that many of the Suffolk farmers undertook to grow so many acres apiece, and Mr. Duncan began his works, and the farmers to sow their Beets, almost simultaneously. Mr. Duncan offered £50 in prizes this year for the encouragement of the new industry. Five silver cups are allotted in the following manner:—Two to be given to the growers who obtain the largest percentage of sugar from a given weight of roots, and three for the greatest weight of roots of the proper quality per acre.

The extraordinary weather of the past year first claims our notice. The drought of 1868 was unparalleled in its character and intensity. Week after week, month after month, a cloudless sky and a tropical sun baked the earth into a mass of impenetrable hardness, and all young and tender vegetation was either scorched up or arrested. Thus nearly all green crops are failures, and for a circuit of five or six miles around Lavenham we have not seen a single field of Swede turnips in tolerable condition. The Mangel crop has stood the trying weather better, but

it, too, has suffered severely; and there are we believe, but two instances of fair crops around Lavenham. Compared with all other green crops, the Sugar Beet is by far the best. This speaks well both for the endurance of the plant, and for the quality of the seed supplied by Mr. Duncan. Of course in a season like the past, the first difficulty with any green crop was to get a good plant. This difficulty was, however, overcome, and in many instances a regular "plant" was obtained.

The crops were spread over a rather wide area, in six or seven parishes, and six or more miles distant from each other. Twenty farmers undertook to grow the crop, and, although the farming is mostly good around Lavenham, of course among so many a considerable variety of practice and of skill was found. The soil, again, was even more varied than the cultivation. It covered the whole range, from a stiff brick earth to a light gravel. In a summer like the past, there was no possibility of growing a green crop upon stubborn clay, and it was almost as sure to be withered up on dry soils of a light sandy character. To these natural and seasonal difficulties, in the way of Beet culture, must be added one or two more, which may be termed accidental; the first of these was the lateness of the season before it was determined to grow the plant at all, so that no opportunity was left to make any special preparation. The two things most essential to Beet culture are, a deep-till and a fine texture; but neither of these could be provided. Land that was meant to be fallow, some that had borne a green crop the year before, several other fields that had been cross-cropped in various ways, and in one instance a field of tares ploughed in—had to be pressed into the service of the Beet growers; and just as the lateness of the time of year prevented the usual preparations, so the peculiar character of the season hindered the usual cultivation. While one farmer's crop was up, his neighbour was actually completing the drainage of his field,

and thus the seed-time extended from the first week in April to the second week in June.

The result was an average yield of from 14 to 21 tons of roots per acre, and it was estimated that with a more favourable season and a better knowledge of the culture of the Sugar Beet—most of the crops having been thinned out to too great a distance between the plants—the average yield would have reached 30 tons per acre. Furthermore, it was discovered that the pulp remaining after the beets had gone through the process of having the sugar extracted from them, contained enough sugar to fatten bullocks readily, and that a ton of it was equal to nearly 8 tons of Mangels for feeding to stock, and was sold at from 12s. to £1 for that purpose. We think, if some enterprising individual in Canada would follow the example of Mr. Duncan, the growing of Sugar Beets would become profitable, both to our farmers and the sugar manufacturer, (the average yield of sugar being 13 per cent. from the raw beets), and open the way for the more extensive introduction of root crops as a means of cleaning the land and restoring fertility to many of our already overworked soils. The Sugar Beet appears to be a much more saleable, and certain crop than the Turnip or Mangel. In a future article we will endeavour to give the method adopted in growing Sugar Beets in France, where it has reached the greatest perfection.

Farm Records.

Every intelligent agriculturist should see the importance of keeping a record of all that occurs on the farm from day to day. All that is required for the purpose is a few sheets of ruled paper, stitched together, on which to jot down every evening, after the day's work is done, what the weather has been, and what has been done, or has occurred on the farm; also, any facts he may have observed relating to the science of his profession. Here is a sample of an entry in our record book that may give an idea of the subject:

"Oct. 22nd.—Cloudy, and ground covered with snow that fell last night; wind N. W. moderate. Commenced feeding hay to cows, and to confine horses to the stable at night. Gathered in the last of the late winter apples; the russets are badly worm-eaten. Four hens stolen from poultry house last night; must get a lock for it. Removed geranium plants from the garden to boxes in the house. Engaged Mike for one month at \$8, commencing to-day. Clear at night with hard frost. 6 lb. 14 oz. butter made from 3 days' milk. Neighbour H. came over and begged hard to have Mike help him thrash to-morrow; could not well refuse him, although I intended to have potatoes dug out at once, as he can get no hands except what his neighbours can lend him.

"Oct. 23rd.—Clear and fine; a hard frost last night, penetrated the ground two or three inches and the Scotch Kidney potatoes, which in growing push out towards the surface, are greatly frost-bitten. Went over at 9 a. m. to neighbour H. to see how he got along with his thrashing. He could not get hands enough, so all the women folks are working in the barn. His crops are terribly infested with Canada thistle, and the air in his barn is filled to suffocation with thistle dust; thistle buds form a large proportion of his wheat crop, and the thrashers wear gloves to protect their hands from thistle spines. Digging potatoes as soon as the ground thawed out, which was not before 10 a. m. Engaged to go to town to-morrow at 6 a. m. with neighbour L., and promised H. he should have Mike to-morrow, as he could not get through with his thrashing to-day. Agreed to let S. have 100 bushels potatoes at 60 cents."

Such a record will always be found interesting to look back upon, as well as valuable in deciding any question that may arise between master and servant, or in regard to sales and contracts made, stock purchased, labour given or received, &c., &c. Besides this record, a field book may be kept in which to record the amount of labour, manure, seed, &c. expended in each division of the farm, and the yield or returns made from the several crops grown upon them. This can be entered from the record book at a leisure time, and will show the gains or losses of each year on every acre of the farm, and enable the farmer to judge how and where to lay out labour and capital most profitably in the future. It is not absolutely necessary for the farmer himself to write the records; any member of the family can do that, even a child, if its education is far enough advanced; but he should give the facts, and see that they are put down in the record book.

Hemp.

We were recently shown some very fine samples of hemp fibre, produced from hemp grown by Mr. H. G. Joly, of Quebec, on his farm at Point Platon. Mr. Joly has written a very interesting letter to the *Gazette des Campagnes*, which we have translated from the French, and condense from it a few facts showing that hemp can be profitably grown in Canada, and that our ropemakers would do well to encourage home growth instead of importing the raw material from Russia and Kentucky.

He says that hemp was extensively grown in Canada when it was under French rule, and that quantities of it may yet be found growing in a wild state on many of the older farms in Quebec. He gives the result of a trial with seed from the so-called "wild hemp," from seed imported from Piedmont, and from Missouri. The Missouri seed produced the finest plants, but the plants grown from "wild hemp" were but little inferior, and

equal to the Piedmontese, while they ripened sooner than the others. The yield of raw hemp is given as 4,400 lbs per acre, which sold at a farthing per pound gives a return of \$60 per acre, besides the seed, which yields an oil equal to linseed oil for painters' use.

He states that the hemp can be grown equally as well as flax, and that the operations of scutching and heckling it can be done in a flax mill, with a little alteration of the rollers, or by wooden hecklers, constructed chiefly for the purpose. The hemp in its raw state is rather bulky for carriage, but when prepared by hand or machinery it is greatly reduced in bulk, and is then worth much more. The price of Russia hemp at Quebec is given as 9 cents per pound, so that if we can grow an article equal to it, which he says can be done, hemp growing would become a profitable branch of agriculture. It takes six pounds of steeped raw hemp to make a pound of hemp ready to spin, or make into rope, and he says the raw material would readily bring a half-penny per pound if steeped, and conveniences could be had for scutching and heckling it. Perhaps this matter may engage the attention of Canadian ropemakers, and they could be induced to encourage a home growth of an article now largely imported at great expense.

Mr. Joly left at our office some very fine samples of Canada Hemp, grown in Quebec, and prepared some by hand, and some by machinery; also, some specimens of rope manufactured from this hemp; a small quantity of the oil expressed from the seed; and also some cake for feed, manufactured after the manner of linseed cake.

We shall be happy to show these specimens to any one who may feel interested in the matter. From the success which Mr. Joly has met with in Quebec, where, we are informed, sixty farmers have grown this crop, we think it very desirable that a trial of it should be made in Ontario. Of course, we would not advise any extensive experiments at first, but operations on a small scale might be sufficient to indicate the suitability or otherwise of our climate for the growth of hemp. Those who have scutching mills for flax should bear this subject in mind.

Early Rose Potato.

This new potato was originated in 1861 from seed of the Garnet Chili, by Alfred Bresee, of Vermont, an intelligent amateur cultivator, and first introduced to notice in the spring of 1868. This gentleman, emulating the example of the late Mr. Goodrich, whose labours have contributed millions to the agricultural products and resources of his country, is still engaged in originating and experimenting with new varieties of the potato, which has been improved within a late term of years, adding both to its product and other good qualities, much more than the cereals

or other farm crops. Should still further progress be made in the improvement of the potato, as there seems to be little doubt of, judging from what has been done, this esculent must take a higher rank and place among the cultivated crops of the farm, producing, as it now does, probably the greatest equivalent of food, both for man and beast, from a given area of surface and cost of labour and manure. And the introduction of varieties wholly or comparatively rot-proof must be of great advantage to owners of all heavy soils, upon which the cultivation of this crop has generally been considered unreliable.

At the first introduction of the Early Rose, in the spring of 1868, the price was named at \$1 per pound, but on its good qualities becoming known, such was the demand that the price was rapidly advanced to \$2 and \$3 per pound, and sold only in pound packages. Hence only a few of the large growers who obtained seed by special bargain (one party obtained a small quantity at \$80 per bushel; a farmer in New Jersey paid \$10,000 for 125 bushels) has yet any large amount for sale. It has been advertised and sold extensively throughout the States this fall at \$1 per lb., and less rates per bushel.

The Early Rose is correctly described as follows:—It has a stout erect stalk of medium height, large leaves, flowers fully, bears no fruit. The tuber is quite smooth, nearly cylindrical, tapering gradually towards each end. Eyes shallow, but sharp and strongly marked. Skin thin, tough, of a dull bluish colour. Flesh white, solid and brittle, rarely hollow; boils through quickly, is very mealy and of the best table quality. It is said to be ten days earlier than the Early Goodrich, ripening in six to eight weeks, and was claimed by the introducers to be equally productive; but all reports hitherto tend to establish the fact that the Early Rose is a larger yielder than even that very productive variety. My own limited experience with this variety, (see CANADA FARMER, Dec. 15th) is quite satisfactory on this point.

The Early Rose is considered to be the most valuable early variety in cultivation. Of this there is no doubt, that it will yield a greater weight of tubers of equal quality in a given time, in the same soil, than any other variety yet introduced. All reports go to sustain this point. I believe there is no variety that will even approach it in these respects. Hence its great value to market gardeners, and others furnishing our markets with early vegetables. A potato grown so as to be in market a week or two before the bulk of such produce arrives, will net the owner double or treble the income derived from later varieties, other things being equal.

But to farmers this variety may be of a greater advantage. There are many who believe that the potato might advantageously take the place of the turnip crop

for the production of food for stock. I have been some time of the opinion that the same equivalent of potatoes, when calculated according to their comparative nutritive value, can be produced at much less than the first cost of a turnip crop, at least in this section. There are other considerations, however, which render the turnip crop of great value to our agriculture here, as it is in England, though not to the same extent. But by combining the two crops—growing them in the same field in the same season, one may produce an unsurpassed amount of the most valuable food for stock grown from a given area, and at a minimum cost—the secret of successful husbandry. In other words, plant a crop of potatoes of such a variety as will ripen without fail inside of two months, and be at the same time a good yielder—say the 1st of May; dig by the 1st of July, when the soil will be, with the addition of some simple fertilizer, in the finest condition for a turnip crop. Such a system, we have no doubt, would be eminently suitable and advantageous on the light soils of our country. The potato crop could beset to market, and bring a very remunerative return to those in easy communication with the principal cities, and the succeeding turnip crop fed or rotted on the field for bringing up its fertility as experience might dictate, or other crops may succeed the potatoes, such as buckwheat, &c. On the whole, it would seem that this new seedling is to take a very high rank in the list of varieties, and is worthy of the widest dissemination.

J. F. C.

L'Original, Ont., Jan. 9, 1869.

Plaster of Paris.

A correspondent, Mr. J. LeB., of Sidney, desires information about Plaster of Paris. He asks

1st. "Is it a marine formation?"

Its geological position is among the stratified rocks. It is therefore an aqueous deposit. It is a sulphate of lime, composed of 40 parts sulphuric acid to 28 parts of lime, the rest being water, and exists in the form of a hard rock called gypsum, found only in some particular localities. To make plaster it is quarried and placed in kilns, then subjected to a strong heat for some time, to drive off a portion of the water and render it brittle. It is then ground in a mill constructed for the purpose. It is found in workable quantities in two localities in Ontario, namely, Paris and York, both situated on the banks of the Grand River. The whitest plaster is the best, and to be pure it must be beautifully white and semi-transparent. The dark color of the York or Grey plaster is owing to its being impure. It should also be ground to an almost impalpable fineness.

2nd. "Does plaster lose its properties if exposed to rain or to the atmosphere?"

The chief value of plaster to clover and other broad-leaved plants of the leguminous

tribe lies in its power to absorb and retain water, so it follows that the drier it is when sowed the better. The ash of red clover contains two per cent. of sulphate of lime; white clover still more. When the plaster has absorbed 400 times its own weight of water it dissolves, and can be taken up as plant food by the roots of the clover. The object of sowing plaster on clover is twofold; first, that its great powers of absorption and retention of moisture may counteract evaporation, and draw the water in the soil and that deposited by dew to the surface roots and leaves of the clover; second, to yield sulphate of lime, as one kind of plant food adapted to clover; and besides, it has a strong attraction for and absorbs ammonia.

3rd. "What is the best time to sow plaster on meadows?"

It is not usually considered necessary to sow plaster on meadows (which we understand to mean permanent grass lands), as it produces no effect on timothy or any of the narrow-leaved grasses; but on clover it exercises a very beneficial effect, and when sown on old grass meadows it frequently brings on a growth of white clover that helps greatly to thicken and improve the pasturage.

There is great diversity of opinion in regard to the best time to sow plaster. Much will depend on the state of the weather during the season. If the spring is dry and warm, early sowing would be best, say as soon as the clover leaves are expanded. If wet, cold, or backward, it would be best to defer sowing till dry, warm weather sets in. In any case, the value of the plaster as a manure would be greatly increased by the addition of dry unleached ashes, in the proportion of 1 bushel of ashes to 4 of plaster. One bushel of the mixture per acre would be sufficient to sow. The plaster does not need to be sown on clover more than two years successively, and should be applied the first and second year after seeding. It will also greatly help the young seedling plants when sown on grain land that has been just seeded down with clover.

In answer to an enquiry from another correspondent, we will state that the price of plaster is from \$4 to \$5 per ton in bulk, at the mills where it is made, Paris or York. The grey York plaster is the lowest in price. Freight, barrels, and commission added, will increase the price, according to the distance the plaster has to be carried by rail or water. The forwarders and commission merchants at most of the lake ports and railway stations keep the article for sale or will procure it when wanted.

THISTLES—Why does clover kill, or keep down, thistles? Is it not because thistles grow from a bunch of eyes just at the surface of the ground in ordinary land? Thistles, like some politicians, must always try to get to the top; the stem grows high to get the bunch of eyes above the clover; the scythe cuts below these eyes in cutting the clover, and thus either destroys or keeps it under.

Alsike Clover.*(To the Editor.)*

Sir,—If you or any of your subscribers will be kind enough to answer the following queries in reference to Alsike clover, you will very much oblige not only myself, but a large number of your readers:—

1st. What is the quantity of seed required per acre?

2nd. At what time and under what circumstances should it be sown?

3rd. How long will it remain without re-seeding?

4th. Will it bear cutting twice in the season, like red clover, or under what conditions is it cut for seed?

5. Has it the same property of red clover, in keeping the ground porous and friable?

6. Please state any advantages or disadvantages it may have, compared with the common or small red clover.

A SUBSCRIBER.

Willoughby, Jan. 19.

Ans.—1. The quantity of seed required per acre is five pounds, when sown clear, and about half the amount when mixed with timothy.

2. It should be sown in the spring with wheat or barley, in precisely the same manner as red clover.

3. With regard to the permanence of the crop, we can speak only from a limited experience. We have fine specimens grown by H. M. Thomas, of Brooklyn, that were taken from a field that was seeded in 1865. There was no deterioration in this field manifest last year.

4. When allowed to ripen its seed it cannot be cut more than once, as it bears its seed with the first blossom in each year, but if it is grown for a hay crop it can be cut again in the fall, and will yield a nice lot of fine hay for calves and sheep.

5. Its effect on the ground is nearly the same as that of ordinary red clover, and perhaps is still more closely paralleled by the small white clover.

6. The most prominent advantages of the Alsike clover over the common red variety are that it does not heave out of the ground in spring with the frost, and consequently it can be sown on damp ground with good results. It makes finer and better hay, for the stalks are not so large and woody as those of red clover. It yields about one-third more seed to the acre, and when threshed the hay makes excellent feed for calves and sheep. Among its disadvantages may be reckoned its rank growth, rendering it liable to be lodged.

Oregon raised about two thousand acres of flax the past season. The yield of seed has been large.

On Tree Planting.

As the forest is fast disappearing, and as it appears to be the general aim to clear as fast as possible, there is nothing that will contribute so much to the beauty and cheerfulness of the country as a judicious method of ornamental tree planting, of both deciduous and evergreen varieties. These can be obtained, in most parts of this country, for the transplanting. They will add beauty to both farm residences and villages, at a very cheap rate, with very little trouble. The difficulty appears to be a want of knowledge in getting them to grow, as I see hundreds planted yearly, merely to die. As you invite correspondence, I am induced to give you a few practical hints with regard to the surest method of transplanting deciduous trees, more particularly that beautiful and useful tree the maple, which has many recommendations. It is indigenous to this climate, is not liable to the attacks of insects, nor injurious to any crop in its vicinity; neither is it apt to sprout from the root, but naturally, and without trimming forms a beautiful top. As I have been particularly successful with this tree on my own farm, I will give my method, by strictly following which, I will guarantee the growth of ninety-nine out of every hundred. First, the time to plant is after sugar making, when it will be found the sap is raised in the tree, and the buds are ready to burst forth; there is then sap enough in the tree to sustain life during that season, as all communication has been cut off from the ground. Take the tree carefully up, with as much root as possible; clean out all small fibres, and trim carefully with a sharp knife the ends of all injured roots, that is all that have been lacerated in taking up. The reason for so doing is, that if planted without trimming, the roots bleed and form a sort of callous lump on the end, which causes the tree either to remain stationary for two or three years, or die; whereas, if properly trimmed, small spongioles shoot between the bark and the wood during the first summer. The top should be carefully balanced with the root; also, it should be planted very little deeper than it originally grew; when taken from the forest, and planted out, it will naturally strike its roots deeper. After planting carefully as above, the trees should be staked to prevent the wind shaking them too much until they are firmly rooted; they should be mulched with either chips, rotten wood, or straw from the barn-yard. They will require no watering, except the summer be one of extraordinary drought; and if so, remove the mulch, and pour on water not too cold; but I have never had occasion to water. If the above method is followed, the labour is sure to be paid for in the pleasure of seeing the tree grow and flourish. The above plan is applicable to all deciduous trees.

C. A.

Leached Ashes.

Mr. Le Doutillier inquires about the value of leached ashes as a manure. He states a case where they were applied to a crop of rye, to its injury rather than benefit, and says that large quantities are being taken away from his neighbourhood to the United States for some purpose or other, which indicates that they have a considerable value.

Leached woodashes contain more elements of plant food than most people would suppose. Even ashes after they have been used in a soap factory still contain some residue of potash, and those which have been leached in the bush, or by the housewife to make her soap for home use, contain still more.

Besides this, they contain nearly all the mineral elements of plant food, which on being mixed with the soil and subjected to the action of other influences, can be taken up by the roots of growing plants. They can be profitably used mixed with swamp muck, or added to the manure heap, where they act as absorbents of the more volatile salts in the manure.

Again, leached ashes have a beneficial influence mechanically on some soils. On heavy clays, when applied in quantity, they render them more friable and open, while on very light sands they render the soil more compact. Some of the barren, sandy wastes of Long Island have been made into productive and valuable farms by the aid of leached ashes alone, and we could tell an interesting story of how a friend of ours reclaimed several acres of blowing sand on his farm in Canada with ashes and clover.

We have found, where ashes are to be used alone, the best plan is to apply them as a top-dressing to grass lands, or to young clover in the fall, after the grain crop in which it started has been taken off. We have no doubt of their being valuable to place around fruit trees, both as a manure and a protection from insects.

Salt for Manure.

The use of salt for manure is increasing in a most rapid way in England. People are beginning to find out that from one-fourth to one-third of the special agricultural manures sold, consists of salt, and many have used salt to the extent, in the field, of twelve hundred weight per acre, and in the garden to even a greater extent, and always with benefit. The refuse salt at the Goderich Salt Wells is being extensively used, and we are assured with the best results, particularly on worn-out land. It now begins to be the opinion of some of our best English agriculturists, that want of salt is the cause of "clover sickness" in land; also that the disease called "finger and toe" in turnips is found to yield to salt. The following fact may be relied on. The writer having to make a path through an old worn-out sod of a meadow, for the purpose of getting rid of earthy matter which soiled the feet, (and the

meadow being on a very thin shaly sand and yellow loam,) removed the turf to a sufficient depth to leave the sheer sand alone, and for a time made a nice clean path; but it being below the surface of the adjoining land, which was foul with weeds, all the seeds drifted with the wind into the path, and became very troublesome. To remove and kill the weeds, he sprinkled the whole path with dry salt, and hoed it. This killed the weeds, but the heads of clover having drifted into the path, there came a most luxuriant growth of clover, which smothered the weeds, and took thorough possession of the soil, and for years the clover there flourished ten times better than on any other spot on the premises—Try it. C.

HOME-MADE GUANO.—A correspondent of the *American Agriculturist* says he made a nice pile of guano by putting a few shovelful of dry muck over the droppings from his hen roosts once a week, during the fall and winter months. In the spring the mass was turned over several times, and was soon finely pulverized, dry and odourless. He applied a handful of it to each hill when planting corn, and found it made the corn grow so fast that the cutworm did not touch it, and he had a splendid crop ripened early. This is a simple way of making a valuable manure, by having the fowls confined to one place at night, and expending a few minutes' time once a week.

PAN FOR BOILING MAPLE SYRUP.—Mr. Lyman Call, of East Dunham, gives an account of his success in making maple sugar, with the use of a pan constructed after the pattern given in the *CANADA FARMER* of the 15th of February, 1868. He says:—"I have a pan made by Mr. Pegguello, of Dunham, according to the pattern given in the engraving, and used it in making maple sugar during the spring. I made 200 pounds of sugar, and it sold for two cents per pound higher than that made in the common pan. The improved pan, well set, and with good wood, will boil from twenty to twenty-five pounds per hour, thus effecting an immense saving both in time and fuel. In this matter alone I have been many times overpaid for my subscription to the *CANADA FARMER*."

NORWAY OATS.—Mr. Charles Scott, of Caledon, writes to inform us that seeing a notice of these oats, he sent to J. P. Lee, Stanstead, and received about 13 lb. of oats, mixed with thistle heads and other seeds. It will require to be hand-picked before sowing. The communication is accompanied by a sample of the "rubbish," separated from the oats. These small seeds appear to be chiefly June grass and wild mustard. In the *CANADA FARMER*, for Dec. 1, we warned our readers on this matter, and stated that "considerable dissatisfaction had been expressed among our neighbours in the United States concerning the true merits of this variety, and the advertisers are charged with endeavouring to put a fictitious value on a very ordinary grain."

Stock Department.

Winter Care of Sheep.

There is an amount of ignorance and carelessness manifested on this subject by many farmers that would astonish an intelligent observer. Of all stock kept on the farm sheep are generally the most neglected, and in many instances are allowed to shift for themselves as best they can among the larger animals, eking out a precarious existence at the straw stack, or getting an occasional mouthful of hay dropped from the cattle racks, or thrown out of the stable on the manure heap.

We recollect calling one intensely cold winter morning on a well-meaning but miserly old farmer, who had boasted of having a flock of merinoes that yielded more to him in their wool alone than the cost of keeping them the year round amounted to, leaving their increase as so much clear profit. After discussing at the fireside with him the respective costs and profits of our flock of well-kept Leicesters, and his merinoes, he invited us to step out to the yard to see his sheep. On going to the yard (which, by the way, had no shelter except the barn on one side), we saw a number of sheep, and such sheep. Those who have seen a starved poodle can form an idea of the appearance of the American merino when kept on short commons. Some were standing against the rail fence or the barn; others were apparently resting in the cold snow.

We remarked to our host, "Those are quiet sheep of yours; they do not seem to be at all annoyed at our intrusion, nor at the dog either." He kicked one to make it get up, but it would not stir, and on closer examination we found every sheep was frozen to death, stark, stiff and hard as a block of ice. It turned out that the young man who had charge of the stock had been in a hurry to get to an apple-paring bee the previous evening, and had forgotten to give a mouthful of food to the poor sheep, already kept on so short an allowance for the sake of economy; and it was no wonder that the want of food and shelter on such a severely cold night had terminated their misery.

The great point in the winter care of sheep is to give them good food and shelter separate from other stock, with plenty of clean, dry straw to lie on.

Close confinement is not desirable for them—they may be allowed to come and go to their shelter at pleasure, and will always go under shelter when they get their food there, and remain under it most of the time, except in wet weather, when they should be driven to it, and compelled to remain out of reach of rain or wet snow. If they require to be shut up in a close building as a protection against wolves or dogs, the gables at each end, from the wall plate to the apex of the roof, should be entirely open to allow the

heated air to escape freely, without at the same time chilling them by the admission of a current of cold air constantly passing over their bodies from below, as would be the case were openings made near the ground.

FEEDING.—The cheapest, and at the same time a wholesome and nutritious food for store sheep, or breeding ewes, is clean pea straw given morning and evening, with one good-sized turnip at noon to each sheep. If turnips or other roots cannot be had, give a little oats at night, say one gallon to every forty sheep, evenly spread in long shallow troughs, so that each animal can get its fair share.

There is, however, a considerable difference in value for feed in the various kinds of pea straw, that having the most leaves and pods, and smallest stalks, being the best. We grew one year five acres of a variety known as the grass pea, which ripens its seed in succession, and is usually covered with green pods and blossoms when the first autumn frost comes, requiring to be cut and cured somewhat like clover. The pea of this variety is not of great value, being small and somewhat like a vetch, and so hard that it cannot be fed to hogs with advantage until it is first ground at the mill; but the straw proved equal to clover hay for feeding both sheep and young cattle, while the yield of fodder was heavy, although we only sowed the seed at the rate of one and a half bushels per acre.

If good pea straw or clover hay cannot be had, bright clean oat straw may be substituted; but in that case they will need a larger proportion of roots or grain to keep them in good condition, and unless they are kept so, they had better not be kept at all. It is not advisable to let sheep, especially breeding ewes, roam over the farm, or get into the grass fields in early spring, which they are very apt to do if the weather is mild and the snow off the ground. It has sometimes a too laxative effect on their bowels, and spoils their appetite for dry feed just at the time when they need to eat most of it; yet on the whole we think they need some exercise, and that no harm comes of allowing them to scratch a mouthful of grass from under the snow in cold winter weather. Sheep are inclined to be fussy in their choice of food, and will pick over and waste a great proportion of their fodder, unless it is placed in racks, and will not touch any food that has a taint of mildew or mouldiness. Many writers recommend sparr'd upright racks, but we prefer the oblong box form, which prevents them from getting chaff or the seeds of weeds embedded in their wool. A little salt should be allowed them once a week, and access to water, though it is not often they seem to care for it.

BREEDING EWES.—Towards spring it will be well to separate the yearling ewes from

the rest of the flock, and place them in a well sheltered yard by themselves, where they should have an extra allowance of fodder and turnips, but no grain. All wool about the udder and inside of the thighs, and any accumulation of filth, should now be carefully removed with a pair of shears. In such a severe climate as ours it is seldom advantageous to have lambs dropped early, though where there are extra conveniences for the purpose of raising early lambs for the butcher, and the farmer has a suitable breed, such as the Southdown, it may be profitably done. As a general rule, the bulk of the lambs are best to come in early in May, or just before the sheep can be turned on to the permanent pastures. Have a closed building, well littered with clean straw, ready, and as soon as lambing commences, put each ewe, as soon as she lambs, into it with her lamb, to remain a few days, or until her lamb has become strong and takes to the teat readily.

Nothing conduces so much to enhance the returns from a flock of sheep as proper and judicious care during the lambing season. When a boy of fourteen, we were given the entire charge through one winter of a flock numbering sixty choice Leicester ewes, with the understanding that a small sum of pocket money should be our reward for each lamb raised, while double that amount was to be deducted for each lamb lost. Out of seventy-three lambs, we lost but one. The weakly ones were carefully carried to the house, and fed with a spoon or sucking bottle till they became strong enough to run with the dam, which was milked regularly during the interval, the milk being given to her lamb, with the addition of some cow's milk and white sugar, if it was insufficient in quantity. We had the satisfaction of seeing several of our flock, both ewes and lambs, decorated with prize ribbons at the ensuing county show; the prize money, \$32, no small amount in those days of backwoods life, being also allowed us for the extra care bestowed upon the sheep.

Are there not many farmers' sons who could go and do likewise? J. M.

Kenwyn Farm.

"Baron Solway."

To the Editor.

Sir,—The death of the celebrated Short-Horn bull, "Baron Solway," (45) which took place on the 1st January, has suggested the idea that it might be acceptable, at least to those of your readers who feel interested in superior stock, to place upon record, in your valuable columns, for future reference, a summary of the history and principal characteristics, of an animal which has held a very prominent place in this country during his lifetime.

"Baron Solway was bred by Robert Syme, of Redkirk, Dumfries, Scotland, and was sired by General Havelock (16,136) dam

Snowdrop, by Strathmore (6517) &c. He was imported to this country in 1861, by that fine judge of blooded stock, Mr. Simon Beattie, who sold him at nine months old to Mr. John Snell, of Edmonton. His first appearance in the showyard was at the Provincial Exhibition at London in 1861, where, though in low condition, owing to a long sea voyage, at a tender age, he easily won the first prize for bull calves under one year. At Toronto in 1862 he won the first prize as a yearling. At Kingston, in 1863, the first prize as a two-year-old, and the sweepstakes for the best Durham bull of any age. At Hamilton, in 1864, he won the first prize as a three-year old. At London, in 1865, from some unaccountable cause, his name did not appear among the prize animals at all, and his owner expressed himself pleased, when he was not placed first, to find that his public record was not spoiled by a second or third prize. At Toronto in the following year, 1866, he again made his appearance to retrieve his lost laurels, and triumphantly carried off the red card, as the best aged bull. Since that time he has never been exhibited. He was sold at Mr. Snell's sale, in January, 1867, to Messrs. Garbut & McCoy, of Toronto township, in whose hands he remained until the time of his death. I believe I am safe in saying that the above record is the most brilliant that has ever been made by a Short Horn bull in the annals of this country. No bull has ever won as many first prizes at our Provincial Fairs, and this record spread over so many years, where he had to vie with the rapid improvement that was made in such stock, shows that he was an animal of extraordinary merit. And his merit did not end with his success in the show-yard, for as a breeder he stood unsurpassed, perhaps unequalled in his day. The journals of the Provincial Association will unmistakably show that his sons and daughters have carried off more prizes at the Provincial Fairs than those of any other Short Horn bull that has ever figured in this country.

At Kingston, in 1863, where he won his highest honours, his bull calves won the first and second prizes; and at London, in 1865, his bull calves fairly "swept the board," carrying off the first, second, and third prizes, a mark of distinction that was never given to the stock of one bull before or since.

Baron Solway was used as a stock bull in the herd of Mr. Snell for five years, where he has left a souvenir of his virtues that will not soon be obliterated. The leading characteristics in the personal appearance of the Baron were a rich roan colour, a large massive frame, with deep ribs, flanks and brisket, full crops, unusually soft and mellow skin and hair, a remarkably strong loin, and a mild expression of countenance, indicative of the quiet, gentle disposition which made him so tractable that "a little child could lead him." He was one of the largest of Short Horn bulls, his weight at four years old being

2,700 lbs., and yet it was the common remark of good judges, that he was the finest big bull they ever saw. His feeding qualities were of the very best description, and he impressed this feature in a marked degree upon his offspring. His death, from a severe cold after being overheated, has ended the career of this noble animal, whose name will always confer distinction upon the pedigrees of his descendants.

J. C. SNELL.

Edmonton, Jan. 8, 1869.

Raising Hogs.

The price of really good pork is up to \$10 per 100 lbs. for large, well fattened hogs. Think of that, ye farmers, and make it a point to raise all the hogs you can. Even if they cannot all be profitably fattened on the farm, there will be a ready sale for store hogs in the fall to drovers and distillery men, if they have been well kept. To make good hogs in a short enough time to prove profitable, two things are necessary—first a good breed, secondly plenty of feed. There are hundreds of hogs now running at large in farmyards or on roadsides in Ontario that have already cost their owners more than they are worth. Gaunt, starving, big-boned brutes are they, going about seeking what they may devour, destructive in every sense of the word, and it is a wonder that something is not done by the township councils to prevent these troublesome animals from running at large, rooting up and destroying the country roads faster than all other causes put together, and rendering nugatory all efforts of pathmasters and statute labour to keep them in repair. The breed of hogs that is most desirable is the one that combines good size with early maturity, and a quiet disposition that will render them easy to keep in confinement.

The Suffolks have all the good qualities that can be desired in a hog, except size, while the Berkshires have good size, but are rather lacking in earliness of maturity, as they do not attain their full growth in less than 16 to 18 months, even when well kept. We must confess to a predilection for the Berkshire breed, having raised fine animals for making pork for our own use, as well as for sale; but it was in days when the cost of keeping hogs confined over winter was much less of an item than it is now. Turnips were then a less costly crop, and potatoes were unsaleable at more than 25c. to 30c. per bushel, so we found it pay to feed boiled turnips or potatoes, mixed with chaff, to hogs through the winter, and found them grow and thrive well on such food, and make an abundance of good manure.

We think a direct cross between the Berkshire and Suffolk would probably hit the mark, and produce a stock that would, with good keep, give animals averaging 200 lbs. weight each at nine months old, and at the

same time be solid enough to put up to fatten at that age. Breeding sows should be kept nearly fat all the time. We know the reverse is too generally the case, and, as a consequence, most farmers find it necessary to destroy many of the young pigs soon after birth, if the sow does not take it upon herself to do so, otherwise she cannot raise them all in good condition. This is an unnecessary loss that could be avoided by keeping the breeding sows always in good condition, and giving them an abundance of food while suckling their young. When the young pigs are three or four weeks old, they will soon learn to drink warm skim milk, or water in which shorts or boiled corn meal has been dissolved. To do this to advantage, they should be separated from the mother during the day, and fed while she is absent, or a small yard can be made adjoining the sty, into which they can have access by a door too small for the sow to pass through, and they can then be fed separately. The great profit in raising hogs is to keep them growing rapidly while young, and they then soon attain sufficient size to be fattened into marketable pork. As soon as the summer sets in the young pigs are weaned, and they should have rings put in their noses and be turned loose into a small paddock well seeded with clover, which they will soon learn to eat in addition to the food given them from the dairy or house. Milk is the proper food for young growing animals, and contains all the elements that go to form flesh and bone.

Working Horses in Winter.

To the Editor.

SIR.—Many of our farmers think it economy to allow their working horses the privilege of running in the barn-yard during the winter months, but it is "peevy wise" economy, for if horses earn their board during the winter at reasonable hard work, it will be better for them than if they are allowed to chase each other around the straw-stack, when but poorly fed and never groomed. A horse that has been well fed, cared for and worked during the winter, is nearly as good for spring work as two poorly kept horses; he is harder, does more work and is less likely to take certain diseases, which a poor horse is apt to after heavy feeding.

Farmers should look at what pays indirectly as well as directly in this matter: because they cannot make so much per day as in summer they will keep their horses idle, although by taking jobs of teaming during winter, even at a low rate, it will be found to pay indirectly. We should consider how profitable it is to have a team in spring that is able to do a day's work, without any danger of sickness brought about by high feeding and hard work.

CULTIVATEUR.

Profitable Pigs.

(To the Editor.)

SIR.—Will you allow me space for a few remarks about raising pigs. As an example I will give the history of five which were pigged on the 15th of September, 1867. I kept them on through the winter, summer and fall, and two of them up to the latter end of November, the other three were slaughtered about a month earlier. My method of feeding through the winter, was to give a little chopped grain (peas and oats mixed) along with the spare milk of the dairy, and the refuse of the house, allowing just enough to keep them growing nicely. Through the summer the treatment was much the same, but without chopping the grain, which I scattered on a board floor, in small quantities only, and much less than they would eat. They were however attended to with regularity all the time; and about the latter end of October I sold three for the Montreal market. Their live weight was twelve hundred and fifty pounds. The purchaser told me that they were the finest quality of pork that had been sold in the Montreal market during the season. The price was \$72, the buyer taking them from the barn. The other two I slaughtered on the last of November for my own use. Their dressed weight was nine hundred and fifty-four pounds; estimating them at \$7.50 per hundred, they would be worth \$71.56. The value of the five would thus amount to \$145.50, which I think paid me as well as any stock or crop I could have raised. It is a common opinion amongst farmers that feeding pork does not pay since the price of grain has become so high; whereas not long since, when pork was \$5 and peas sold at 50c they were satisfied that it did pay; I think it will pay now at \$7.50, though the price of feed is a little higher; and I believe a great quantity of pork this fall has been brought to market not half fed, just because farmers thought it would not pay to keep the pigs longer or feed better. But my belief is that if anything is worth doing at all it is worth doing well. Many farmers let their pigs run along the roads or anywhere, without taking the least care of them, until a few weeks before they think of killing them. Then they will enclose them with a few fence rails, with not so much as a bit of straw over them to shelter them from the wind and rain, and at the same time will have them nearly over head and ears in every sort of filth. Surely no reasonable man can expect any animal will thrive and be profitable under such treatment. In my opinion, the porker, pig though he be, likes a good, dry, warm bed, shelter and cleanliness, and will thrive all the better for these comforts.

A CONSTANT READER.

Pickering.

The total wool clip of the United States during the past year is estimated at 177,000,000 lbs.,

Hints on Winter Feeding.

To the Editor.

SIR.—IN THE CANADA FARMER of December 15 1868, your correspondent H. C., of Plantagenet, wishes you or some of your subscribers would give a few more practical hints on the management of stock in winter. He also gives you an outline of the treatment they too often receive in that part of the country where he resides. In compliance with the request, allow me to offer a few practical hints on the subject. In the first place, sell part of the stock, if you have more than you can properly winter. It is poor policy to keep more stock around us than we can keep thriving, but judicious management will largely increase the number that we can profitably retain. When the stock are brought from the fields in autumn to the barn-yard, they should immediately be separated, not only the different kinds from each other, but young and feeble ones should be placed by themselves and receive special care. If there is not enough room in the sheds and yards which ought to be already provided, the rails that your correspondent speaks about, if taken before the cattle have finished them entirely, will help to make very good lodging for winter. They may be made into very comfortable sheds by taking two upright posts and placing a pole across them, then laying the said rails on end against the cross pole while the other rest on the ground (or something else for the purpose). To this structure apply as much straw as you think proper. But to all this I prefer good stables, especially for milk cows. They should be stabled if there is one to be had. The stock now properly cared for as regards shelter, we come to notice the feed box. There should be proper places made for the stock to feed from instead of the ground. In feeding from boxes and racks, you save enough feed to pay your expenses and support an agricultural paper besides, which I think is good pay. The old style was to throw a fork-full of feed on the ground, here and there, to a lot of hungry, starved creatures. The first lucky one has a few mouthfuls clean, but his superior coming for a share drives him away; and instead of going round his feed, he takes the short cut and goes straight across. Thus, in a very short time, not one of the beasts will touch it. Milk cows should have their fodder cut fine mixed with bran and wet with water. Ruts in addition to this will be very good, not only for the cows, but also for the dairy maid's or somebody else's pocket.

D. B.

REVIC.—A paragraph has appeared in several of the papers announcing the sale of this fine blood horse, and his removal to Kentucky. We are glad to be able to correct this statement, as far as the destination of the horse is concerned, for he is still in Canada, and we believe is now the property of Mr. St. George, of Oak Ridges.

The herds of cattle roaming over the prairies of Texas are said often to number thousands, and when making their way to the watering places are not to be trifled with.

Mr. J. F. Cass, of L'Original, has sold to Mr. James Murphy, of Potsdam, N. Y., a pair of improved Berkshire pigs, perfect in point of form and colour, bred from imported and Provincial first prize animals.

SALE OF STOCK.—Mr. Ashworth, of Belmont, Ottawa, has sold his short-horn bull-calf, "The Marquis of Belmont," got by Sweetmeat (20,924) out of Souvenir of Thorn-dale by 2nd Grand Duke (12,961) to William Graham, of Gloucester; and the short-horn bull, "The Lad of Belmont," got by Sweetmeat (20,924) out of Lesbia by Barrington (1,229) to the Hon. James Skead, of Ottawa.

SHORT HORN MEMORANDA.—Mr. John Snell, of Edmonton, has re-purchased the two year old short horn bull "Louden Duke," which he sold to Mr. Wm. Collum, of Wilmot, last spring. "Louden Duke" was bred by Abraham Renick, of Clarke County, Kentucky, and imported by Mr. Snell. He has distinguished himself by winning the first prize as a yearling at the Provincial Fair at Kingston in 1867, and the first prize as a two-year old at Hamilton in 1868, where he had to compete with the best ring of that age that has ever met in this country. His weight at two years and six months, in ordinary condition, is 1,900 lbs.

WARM WATER FOR STOCK.—Every now and then we come across a paragraph, copied probably from some agricultural paper that is edited by a city man, who knows little practically about what he writes of, recommending that in cold weather the water given to animals to drink should be warmed. Well, now, we would like any of these very clever writers to just try the experiment of drinking warm water themselves. If tea, coffee, or anything palatable is infused in warm water, it becomes drinkable; and so with stock, if you add a little meal, bran, or even salt, to warm water, they will drink it. We have tried the temperature of water from spring wells, and have found that in the coldest freezing weather it does not go below 39°, and we have proved to our own satisfaction that in cold weather, if a horse or cow is offered a choice between a pail of cold water just pumped from the well, and one of water that has been slightly warmed by the addition of hot water, they will not touch the latter. Animals should get water fresh from the well or spring, not that which has become partly frozen, and is full of lumps of ice, which are sure to be swallowed to their injury. When stock are kept long without water, or get it only once a day, they are apt to drink too much at once, which is the reason why they are observed sometimes to get chilled after drinking. They should have access to water at all times, or if kept confined should have it given them often and little at a time, three times a day at least. In summer they prefer water that has been warmed by exposure to that which is very cold from the well.

Veterinary Department.

Diseases of the Horse's Mouth.

Lampas is a disease which is very often supposed to exist amongst our Canadian horses, and is a favourite complaint of many grooms and others who aspire to a knowledge of horseflesh. Now, what is understood by lampas is a swollen and turgid condition of the gums around the incisor teeth of the upper jaw, and extending to three or four of the cartilaginous bars forming the roof of the mouth. This congested state of the parts mentioned is occasionally met with in young horses from two to five years old, and during the time they are shedding their teeth. The apparent augmentation of substance is due in most cases to congestion of blood, and in some instances there may also exist a serous infiltration into the cellular membrane which attaches the bars to the hard palate.

The symptoms of lampas are a swollen and reddened appearance of the gums and bars, and they either protrude or are on a level with the teeth. No doubt, during the time the temporary teeth are being replaced by the permanent teeth, this turgid and congested state gives rise to a considerable amount of irritation, and prevents the horse from masticating his food properly, and this very soon interferes with the true process of digestion.

This is, however, a very simple affection, and but little treatment is required. If much inflammation exists, two or three slight scarifications will relieve the congested parts and blood-vessels, and the horse should be fed for a few days on soft food, that requires but little mastication, and this will effect a cure. In some cases a mild dose of purgative medicine is advantageous in removing the irritation produced during the process of shedding the teeth.

There is a cruel practice in common vogue amongst many, in regard to the treatment of lampas, and that is the absurd practice of burning the gums and bars with a hot iron. This is called burning out the lampas. This absurd operation is not confined to horses really suffering from an attack of lampas, but many a poor horse has his gums severely burned because some wiseacre has looked into his mouth and said he was affected with the lampas, when in reality he was suffering from some constitutional disease, and thereby has got added to his other ailments a sore and inflamed mouth, which not unfrequently terminates in caries of the bone.

We unhesitatingly assert that in nine cases out of ten, where a horse shows an impaired appetite, said to be caused by lampas, the real cause of loss of appetite will be found elsewhere, and we strongly recommend owner horses not to allow their horses to

be subjected to the cruel and absurd practice of burning out the lampas. We would also advise those who are in favour of using the lampet iron, before operating, to consider what would be the suffering and the result of applying a hot iron to their own gums. We think one application would have a salutary and lasting effect.

Abortion in Cows.

A "County of Oxford subscriber" asks: "What is the cause of cows slipping their calves when about half gone in calf? Is it infectious? Can you give me any cure or preventive?"

Abortion is a frequent occurrence amongst cows, and especially in high-bred animals, and such as are kept in a high condition. There are many circumstances that appear to have a tendency to produce abortion, as injuries, over-driving, &c., &c. We are also of opinion that it is frequently brought about by eating largely of certain kinds of herbs and grasses, the seeds of which possess properties that have a peculiar and exciting action on the womb. It may also be produced by innutritious, indigestible, or badly prepared food, together with an insufficient supply of pure water, and also from exposure to cold. In all cases where a number of cows abort, or when it occurs year after year upon the same farm, we are inclined to believe that it is in a great measure due to some local influence either connected with the food or water. We do not consider abortion infectious, but the smell proceeding from a sick animal or its discharges may produce a certain nervous excitement in others, and we cannot too strongly recommend the removal of the affected from the healthy. As a preventive, a moderate supply of soft, laxative food, with an occasional dose of treacle, has a very good effect when the bowels are torpid. Strict cleanliness should be attended to, keeping the stalls well cleansed and the stable or byre thoroughly ventilated. Putrid matters, especially, should be carefully excluded from the premises.

In some cases the premonitory symptoms are tolerably well marked, and abortion may be prevented by removing the patient to a comfortable box; and if the animal is in high condition, feed very sparingly, and give every day for three or four days one ounce of laudanum in four ounces of water. A cow that has aborted once is apt to do so again.

GLANDERS IN THE HUMAN SUBJECT.—The medical journals report the case of Mr. Eli Townsend, Montgomery, Ala., who treated a horse having the glanders. Mr. Townsend had, at the time, a scratch upon one of his hands, through which his system became inoculated with the poison, and after great suffering, he died in fifteen days from the beginning of the attack. A similar case has recently occurred in the city of New York, where the disease is very prevalent among horses.

Broken Horn.

John Shaw, writes:—"I have a fine yoke of oxen coming five years old; one of them got his horn knocked off while running in the straw yard. When first noticed, the shell was lying on the ground, and the horn bleeding freely. I replaced the shell in its natural position, binding it tightly on with woollen cloth, saturated with spirits of turpentine. Will you inform me whether the horn is likely to grow again?"

If the horn covering is knocked off, and the bone or flint uninjured, in the course of time a new horn, similar to the original but not quite so strong, will be reproduced. This process will begin at the base of the bone, and gradually ascend until it covers the bone completely. In the case to which you refer, it is probable that a new horny substance will form, if the bone is not injured. The application of turpentine was not judicious.

LICE ON CATTLE—William Veitch, of West Montrose, asks what is a remedy for lice on young cattle. He says he has tried tobacco juice ineffectually, and wishes to know if Miller's Tick Destroyer would answer the purpose.—Tobacco properly applied is generally efficacious. An infusion of quassia (1 lb to the gallon of boiling water) is a perfectly safe application, and frequently gets rid of the vermin. Miller's Tick Destroyer, carefully used, according to the printed directions, would, no doubt, answer the purpose.

ELASTIC SOLES FOR HORSES' FEET.—A subscriber asks our opinion of the India Rubber soles or cushions recently brought into notice for horses' feet. They have been found serviceable in some cases, and we would recommend their use in the case of horses with weak heels. They are of most benefit when the roads are dry, hard and uneven, as they tend to break concussion in travelling, and also protect the sole. Although useful in many instances, they cannot, of course, be expected either to alleviate or to prevent all the diseases to which a horse's foot is liable.

DISEASES OF FARM STOCK—The *Prairie Farmer* gives the following from advance sheets of the Agricultural Report for 1868:—"The annual loss to the United States of farm animals, by disease, is placed at not less than fifty millions of dollars. Horses, mules, sheep and swine have all suffered from the local prevalence of malignant forms of disease, against which little veterinary skill is opposed, and little more than empiricism and superstitious folly is practised. In swine alone the losses are shown to be at least ten or fifteen millions of dollars annually, by the disease commonly known as hog cholera, for which no remedy has been found, and prevention proved difficult and uncertain.

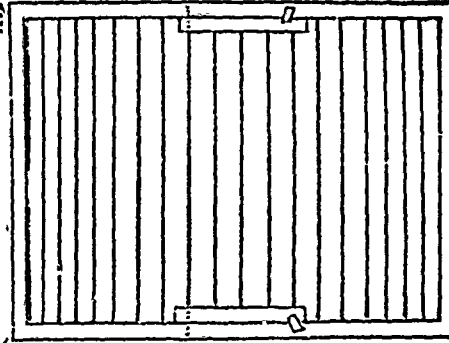
Poultry Yard.

Exhibition Pens for Poultry.

BY COL. HASSARD.

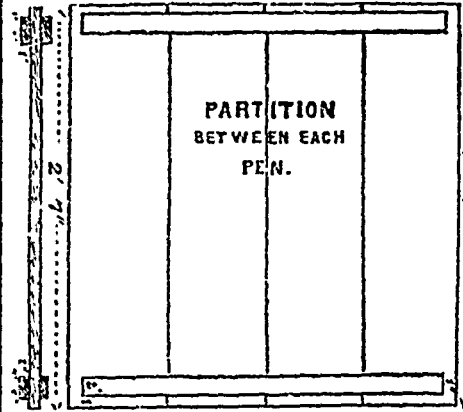
Some account of a convenient and economical style of pens for poultry may be useful to those who have the difficult task of

SINGLE FRAME



making arrangements for exhibitions. The pens designed by me for the Ontario Poultry Association, and which have been in use at all their shows, have been found to answer their purpose efficiently, and I will endeavor to give an account of their construction, which is very simple, and will be readily understood by the aid of the accompanying figures.

A single pen consists of three frames, 3 feet wide and 2 feet 6 inches high, for the front, back and top, and two solid wood sides, 2 feet 7 inches high and 2 feet 6 inches deep. The frames are an inch and a half wide by one inch deep, with about seventeen iron wire bars, the three centre bars being shorter, and fitted into pieces of inch stuff, which turn when required on a single bar, acting as a hinge, thus forming a door, which is secured at the top and bottom by a button. The solid sides of inch stuff have battens or ledges, one inch from the top and bottom, and which come to within an inch of the back and front. Into the ends of these



battens the screws which fasten the back and front of the pens are screwed. Thus the front, back and top are of open wire, and plenty of light and air are afforded.

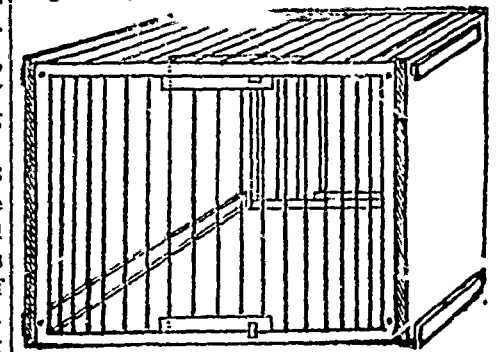
By making use of the top and back frames, adding one side, and taking advantage of a wall for the back, this will form three pens as all the frames are the same size. Each will be a pen of three feet frontage, and it is

premised that the pens stand upon a table, which forms the bottom, and some loose boards may be used for the top. These will also form the bottom for an upper tier of pens at an exhibition. They have the advantage of being easily removed and packed away when not in use; and, in fact, all a Society has to do is to have enough frames and sides to transport to where shows are held. In this country lumber can easily be obtained to make the top and bottom.

This is what we started with in the formation of our society; but I should like to say a word about sizes of pens, which are stated in the *Field* of December 8th, 1866, to have been as follows, at Birmingham:

- For geese and turkeys, width, 3 ft. 6 in.
- depth, 2 ft. 6 in.
- height, 3 ft.
- Large fowls, width, 2 ft. 6 in.
- depth, 1 ft. 10 in.
- height, 2 ft. 10 in.
- Bantams, width, 2 ft.
- depth, 1 ft. 6 in.
- height, 2 ft.

For pigeons, the pens might be rather less, but if much smaller the birds, especially the large sorts, will not look well in them.



ONE PEN COMPLETE

It should be borne in mind that the bars should be sufficiently close to prevent the specimens from getting through, and that at the sides of each frame they should in all cases be so close as to prevent the cocks from reaching round at one another to fight. I prefer wire pens galvanized, but they are more costly in this country than wood.

In arranging pens for an exhibition, they should be placed at a convenient height from the ground, say 1 foot or 1 foot 6 inches, and never in more than two tiers. Bantams, pigeons, or even small birds, will be seen at a disadvantage if placed on the top of a second tier.

It will be understood that if the Birmingham sizes are adopted, the sides, &c., must be constructed to fit the fronts. I have not seen their pens, which are hinged together and folded up. These would cost more in this country than our arrangement.

The New York State Poultry Society have appointed Colonel Hassard their Honorary Secretary for the Dominion of Canada, as a testimony of their appreciation of his thorough knowledge of the subject, and the service he has rendered to the cause of poultry culture on this side the Atlantic. Mr. Tegetmeier is appointed in the same capacity in England.

Breeding Poultry.

You can breed chickens to just what colour and shape you please. From their particular mode of reproduction, effects in colour, size and form, can be produced with great rapidity. As an instance, the writer had some white (or rather what is called white) Brahma Pootras; of course they had the yellow legs, skins and fat, of that class of fowls. A friend wished to get a run and a change, for a prize Dorking hen, and we took her to oblige him. From her size she had evidently some of the Cochin blood in her, although strikingly of Dorking form and with full Dorking points. By accident some of her eggs, whilst she was running with the Brahma Pootra cock, were hatched, and the produce showed a thorough mixture of blood, but one of the chickens turned exactly after the Brahmas, with the exception of clean white legs, all else was Brahma. The chick was a hen, and was so handsome that she was kept, and put with the true Brahma strain. Her chickens were apparently true Brahmas, but some had white legs. These were so handsome that they were selected, bred from, and finally the whole flock was bred with true Brahmas in every other respect but with white smooth legs, white skin, and white fat. They however produced the dark eggs of the Brahma. In three years, by selection the entire flock were bred all to one colour, and one feather, (except the legs and skin), and a handsomer lot of fowls were never seen. Their beauty of form, and feather, seemed to intensify, and they became a breed of themselves. They were good layers, thrived well, produced eggs at from five to six months old, were very full of feathers and stood the frost well, were large, and fattened well, so that the chicks at six months were so nearly full grown as to lay on fat all over, and were delicious eating. During the last year they were kept, fifty chickens were produced from different hens, all so like each other that they could not be distinguished apart by strangers. A change of residence to where fowls could not be kept, broke up the strain, but the facts proved by the experience in raising them are invaluable. C.

Chicken Hatching and Feed.

The Brahmas and Cochins, according to our experience, are bad mothers for hatching; they are clumsy and slow, and I have often thought have been, by a long course of artificial treatment, rendered in a measure unable to hatch the chickens properly; and at all events, after suffering the loss of many broods (for I do not consider four or five chickens a brood at all) we took the matter into our own hands, and with the greatest success. As soon as the hatching day came, we examined the nest. If the hen was found to have hatched any chickens, and they were dry and lively, they were not interfered

with, but all the eggs which were pecked were removed. The shells were carefully broken by hitching the point of the nail of the fore-finger in under the edge of the broken shell, and lifting it out, and so on round the egg. This was done, if possible, without breaking the skin which covers the chicken. As soon as a band round the circle of the eggshell was completely taken off, the cap part was carefully lifted off, and the chick tumbled out of the shell into a properly prepared basket. It might bleed a little in detaching it from the lower part of the shell, but we never lost one from that cause. A fine tumbling awkward wet wretch the poor little creature seemed, but it was covered up warm and left whilst the others were proceeded with. Each egg in turn was operated on in the same way until all were released, and put together. The vessel we put them into was always an earthenware dish or basin, holding about half a gallon. The bottom of this basin was covered with bran to about two inches deep, and the bran covered with a piece of old blanket or flannel. All had been put in the stove oven until thoroughly warm. Another thick covering of flannel was put over the wet struggling mass of newly formed life, and the basin was restored to the oven, or a good warm place on the stove. Of course, we did not keep it hot enough to cook them, but we kept it very hot. The bran kept the chicks from scalding at the bottom of the dish, and the flannel kept them from the sides. They rubbed against one another and struggled together until they dried themselves, and in three or four hours they would be as fine-looking a lot of chickens as you would wish to see. We always left one with the hen to pacify her, and as soon as all were dry and lively, they were restored to her. We have taken them out in this way in broods of eleven, and never lost one. On one occasion one bled very badly, and we thought it would die, but it got on as well as the rest, only was rather smaller for a time.

Mind, however, there must be no half measures, no cracking the egg, and leaving the chick to get loose of itself. If this is done failure is certain. The skin of the egg will dry and stick on to the bird, and cannot be removed without tearing off feathers, or rather down and skin, and then it will die; whereas, if the shell is taken off while the skin has all the natural moisture about it, there will be no sticking whatever. The most curious part of the whole is, that from a natural chemical effect, the moisture which is sufficiently gelatinous to stick the skin and shell to the feathers, or down, under an imperfect operation, never clogs the down when the chickens are put in the basin. There they dry up and get as fluffy as they would under the hen, and in far less time. The eggs should not be broken before the chipping by the imprisoned chick has been

perfectly done, and if they wait an hour or two to breathe through the aperture and get strong, so much the better. Well, having thus got the brood out and collected together, the hen will do well with them. Then feed them with hard boiled egg chopped fine, for two or three days, towards the end mixing fine corn meal moistened with water with it, and some bread crumbs. After that, fine sweet ground corn meal should be the only food, besides what they can get in the way of insects. Set the coop in the garden where the sun shines, and the chicks can get flies and insects. Keep the coop well sanded for cleanliness, and you need not fear for your brood. We never lost a chicken after it was once hatched, except by rats or some accident.

Many will sneer, more will laugh, at this mode of dealing with the young brood; but all who wish to secure good broods from under Cochin hens or Brahma Pootras, when they once try it and become expert at removing the shell, will cease to leave their fancy chickens to be trodden to death in the nest by their heavy clumsy mother. C.

The Ontario Poultry Association.

The regular monthly meeting of this Society was held on Thursday, February 4th, in the Agricultural Hall—the President, Jas. Graham, Esq., in the chair. Several new members were elected, and a large amount of general business connected with the Association was transacted. The subject of a spring show was then taken up and fully discussed, and it was unanimously resolved to hold an exhibition. To carry out the desire of the meeting in this respect, a committee was appointed, with full power delegated to it to consummate all the details relating thereto. A strong feeling was manifested that the intended show should not only equal, but surpass anything of the kind yet held under the auspices of the Association. It is fully admitted that since the inauguration of the Society great progress has been made in this branch of domestic economy; and as several amateurs have, within the last year, freely imported new specimens of the rarer breeds, and several more are ordered and expected shortly to arrive, we may anticipate not only a larger display of birds of a better class than those heretofore shown, but a much keener competition for prizes than has taken place at any previous exhibition.

Notice of motion by the Secretary was given that he would at the next meeting move the adoption of an entirely new Constitution and By-laws for the government of the Society, which, if carried, will completely change its mode of working. The proposed Constitution and By-laws provide that the regular meetings shall be held quarterly instead of monthly as heretofore; and that the business of the Society shall be conducted by an executive committee, consisting of eleven members named therein, who

shall have the sole control and management thereof, and shall hold monthly meetings. The officers composing this committee to be elected at the December meeting in each year.

The reason for the introduction of any change in the Constitution arises principally from the large increase in membership which has taken place since its formation in the latter part of 1866. Gradually but steadily, it has gone on increasing in numbers and in public favour, until now it assumes a position and standing not equalled by any Society of a similar kind on this continent. On its list of members are to be found the names of gentlemen residing not only in all parts of the two Provinces of Ontario and Quebec, but also in the neighbouring State, and in the city of New York. It will readily be admitted that a very different code of laws is now required for the government of a Society composed of members so far apart, from those by which it was governed when in its infancy, and composed only of a few Toronto gentlemen, and hence the reason for the change proposed. We wish all success to the Association, and trust it will not only continue in its present prosperous state, but by the end of the year its numbers and finances will be still more largely increased, and its usefulness extended to all parts of the Dominion.

Prize Lists at Poultry Exhibitions.

To the Editor.

Sir.—Having addressed you on the subject of judgments at poultry shows, I will now offer a few remarks on the prize lists as generally prepared at the Provincial and other exhibitions.

Poultry shows are in their infancy in Canada, and committees would do well to remember this, as they have difficulty in getting enough money for decent premiums. Their lists, as a rule, are too extensive. This may tend to increase the varieties on exhibition, but not to improve their quality. It is costly to the manager, and not beneficial to the cause.

I am not one of those who wish to dictate as to what sort should be kept, but the most useful fowls for agricultural or table purposes should be encouraged by larger premiums, in preference to the purely fancy varieties. Thus Dorkings, Brahmans, Cochins, Game, &c., should have precedence over and larger prizes than Polands, Hamburgs, Bantams, &c. There are also varieties differing simply in the ground colour, the markings being the same; these may, therefore, fairly compete in the same class. Of course, the fancy of the judge must somewhat influence the awards, but this cannot be avoided.

The exception to this clubbing in a show, and a good principle to adopt after the exhibition has been held, is to support the classes in which most entries have been made; and where few or only one has been made, let such class be omitted in the next prize list. By thus feeling their way, a good,

well-supported exhibition is finally obtained, and at the various exhibitions the list may be extended. But a small number of varieties, with good premiums, would be more likely to fill and make up a good show, than a larger list with small premiums, which will not pay even the cost of transport to successful competitors.

Shows are sometimes got up on the sweepstakes principle, all or a portion only of the entrance money being given as premiums. This is, of course, a safe way of conducting an exhibition, although it has not proved popular here.

On the subject of pigeon prizes, the same difficulty arises, chiefly because they are more a fancy stock than fowls, although not more so than some varieties, such as bantams, &c. One fact is clear, that in this country they are recognized, as at all shows a prize is offered for the best collection—generally a collection of hybrid rubbish.

This arrangement is not satisfactory. Any fancy pigeons are costly, and should be met by a more liberal premium than is usually allotted to them; and as before in the case of fowls, I think a few sorts, well represented, better than this collection of rubbish. The Runts, which I have never seen represented at any show in Canada, deserve attention, as weighing, in good condition, between four and five pounds apiece, they go some way to fill a pie.

My letter has been long enough, but on a future occasion, should you desire it, I will furnish a prize list in accordance with the above views.

F. C. HASSARD.

Poultry at County and Township Fairs.

To the Editor.

Sir.—Having had occasion to visit several of our county and township fairs, I have noticed a great deficiency in the department of poultry, resulting, I have no doubt, from want of attention on the part of Directors in not classifying them properly, and also from the little encouragement given to exhibitors, the amount of prizes offered in this department seldom exceeding \$1.

As the prize lists are now commonly arranged, there are one or two not very important and almost extinct varieties mentioned, while others, such as the dark and light Brahmans and buff Cochins, the latest and most important varieties, are not mentioned; consequently, they must be exhibited in that extensive class called "other varieties," or kept at home. At the County Fairs of York, North and South Ontario and Durham, and at the Township Fairs of Pickering, Uxbridge, Scott, Whitby, &c., I noticed the same defects. At one of the county fairs above mentioned I observed a pair of fine game-fowls not receiving any prize, and in the next cage a pair of common fowls obtaining the first premium.

The same remarks will also apply to ducks and geese, and I am well aware that such men as Mr. Henry and Mr. Arkland, of Oshawa, who have been at considerable trouble and expense to improve these important domestic fowls, fail to exhibit on account of the above facts.

Now, as there are numbers of first-class fowls in the country, and we fail to see them on exhibition, I trust the Directors of the various county and township fairs will give at least a little attention to this department.

JAMES DALE, Uxbridge, Ont.

Swollen Feet in Poultry.

To the Editor.

Sir.—Can you tell me the cause of swelling in the feet of poultry? I lost a very fine cock from it in the summer. It commences with a slight thickening at the root of the toes, and goes on until the sole is four or five times its natural size, and quite hard. I have a cock and hen that way now. There is no appearance of softness, but the birds walk lame and stiffly. It is not caused by wet feet, I am sure. In the case of the bird that died, I made a deep incision in the excrescence, but found nothing like suppuration. The wound healed up and that foot was no worse than the other, and he died some weeks afterwards, wasted almost to a shadow.

W. CROWTHER.

ANSWER.—If your fowls are Dorkings, the complaint is probably what is called "bumblefoot," which is pronounced by most poultry writers incurable. It is apparently caused in some instances by birds flying from high perches, but in many cases the cause and, indeed, the nature of the affection, are very obscure. There does not seem any sufficient reason why your bird should have died from this complaint alone. A cautious application of tincture of iodine is the best remedy we can suggest. Should you make any trial of it, we should feel obliged if you will report the result. Tegetmeier describes the gout of Cochins, and recommends for it one grain of calomel at night, and three drops of wine of colchicum twice a day, keeping the bird warm. Gout, however, would be a more painful affection than that with which your birds seem to have been afflicted.

DARK BRAHMAS.—This very handsome variety, which, till recently, was but little known in Canada, seems to be coming into favour, and the produce of imported fowls is in considerable request. Some of the birds raised by Mr. H. M. Thomas, of Brooklyn, have been sent, among other places, as far as Quebec, and we have received communications speaking in very high terms of them. The breed, which deserves the attention of poultry fanciers, will, no doubt, be better represented than heretofore at our exhibitions.

Natural History.

The Mouse Family.

An account of this very common and too well known little animal may seem altogether unnecessary, and it is not intended to give any particular description of either of the species that are the most abundant and familiar in our dwellings, but rather to notice briefly the tribe, completing as it does the Canadian list of the order *Rodentia*, of which all the other families have already come under consideration in previous numbers of the CANADA FARMER. Thus, to take a retrospective glance, we have presented to the reader illustrations and brief descriptions of the Beaver family (*Castoridae*), including the Beaver and the Muskrat, the Porenpines (*Hystrioidae*), the Squirrels (*Sciuridae*) and the Woodchuck (*Arctomila*). The Mouse

elude capture by its wonderful activity. It is said to leap at times over a distance of three or four yards, a most extraordinary feat of agility when the diminutive size of the animal is taken into account. Its long and powerful hind legs, assisted, no doubt, by the tail, are admirably adapted for this peculiar mode of progression. The larger species of this group, the Jerboa, Jumping Hare, and similar creatures, are principally natives of Africa, but are also met with in other parts of the old world.

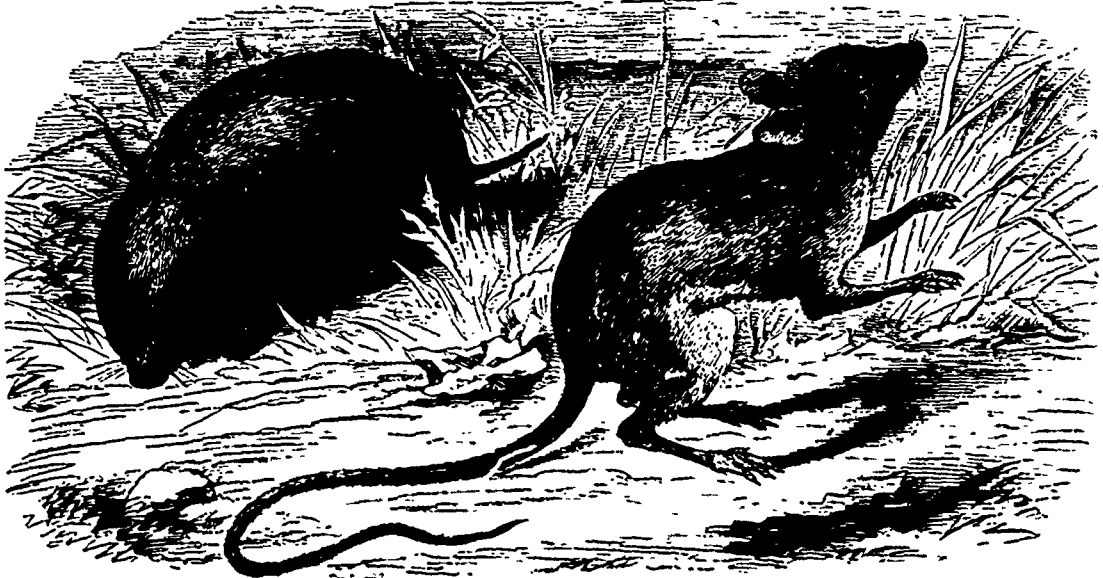
The members of the Mouse family proper (*Murida*) are by far the most numerous of this extensive order. The common brown Rat (*Mus decumanus*), should be allowed precedence, as it is undoubtedly the most powerful of the family. It is not a native of this continent, but was imported with the first ships from Europe. The characteristics of this dreaded pest of the barn and the ware-

and become a pestiferous source of disease and death.

The devices for destroying and capturing rats are innumerable, and their cunning in eluding them is extraordinary. In setting traps for them, care should be taken not to touch the trap with the hand, as the animal's keen sense of smell will detect the human odour and render the rat suspicious. Gloves smeared with oil of anise seed are recommended for handling and baiting the trap. The rat is a very ferocious animal, and when making a combined attack in large numbers becomes a formidable and dangerous opponent even to man.

The mouse (*Mus Musculus*), like its larger cousin, is omnivorous and ubiquitous, almost equally prolific, and only less destructive from its smaller size.

The characters proper to the genus are chiefly the following: The molar teeth, six in the upper and six in the lower jaw, are



family (*Muridae*), and one small intermediate group, the Jerboas (*Jerbellidae*), remain to be noticed.

Of this last branch of the order we have in Canada only one true representative, the elegant and active Deer-mouse (*Meriones Americanus*), called also sometimes the Jumping mouse, a name which is more properly given to another species, *Mus leucopus*, a small mouse with less of the miniature kangaroo in its appearance, and by no means equalling the Deer-mouse in its power of leaping. This beautiful and agile little creature, the Deer-mouse, is represented in the foremost figure of the accompanying illustration. It is of a light brown colour: its total length is about eight inches, of which the tail measures five, the body two, and the head one. It is a hibernating animal, and passes the winter in a torpid state, within some hollow tree or log, or other sheltered cavity, where it usually escapes detection. During the rest of the year, also, though not unfrequently seen, it generally contrives to

house, especially their voracity, destructiveness, and extraordinary fecundity, are everywhere too well known. Wherever they effect a lodgment, they multiply and swarm amazingly. The female produces three broods in a year, each brood consisting of from eight to fourteen young. Their excessive increase is somewhat checked by their extreme voracity, which even extends to cannibalism, for they destroy and devour each other, a maimed or wounded rat being certain to fall a victim to his murderous companions. As a consequence of this propensity, and still further limiting the multiplication of the race, the females are very greatly in the minority. Notwithstanding their destructiveness, they are not without their use in the economy of nature. Their very voracity is turned to valuable account by rendering them efficient scavengers, especially in crowded cities, where large numbers of them occupy the sewers, and do good service by consuming much of the offal and refuse matter that would otherwise accumulate

tuberculated, or marked with conical prominences on the summit, and the tail is naked and longer than the body. These characters distinguish the genus from another very closely allied, the Field Mouse (*Arvicola*), in which the crown of the grinders is flat, the enamel forming angular ridges, and the tail is much shorter than the body, as well as more or less furry.

Of this genus there are many native varieties, but they have not yet been clearly defined. In the "Natural History of New York," a large number are mentioned, but with considerable discrepancy and uncertainty in the nomenclature and classification.

In the Toronto University Museum there are also specimens of several species, but they are not named. The second figure in the illustration represents a common variety of Field Mouse, which is frequently met with in meadows or grain fields, where it is not a little destructive. The Mole, or Water Rat, a species of *Arvicola*, does not seem to be native in Canada.

The Dairy.

Canadian Dairymen's Association.

On Wednesday Feb. 3, the second annual meeting of this association was opened in the Town Hall at Ingersoll; Mr. Chadwick, President of the Association, occupied the chair. The number of members present was upwards of 200, and the Convention was considered an entire success. Business was begun at 1 o'clock, when the various committees were appointed.

At half-past two the Convention again met, and the order of business having been reported, the President delivered his address, in which he adverted to the rapid growth of the factory system of cheese-making in Canada, to the progressive character of dairy farming, and the necessity of keeping pace with the latest improvements of the day, if we would successfully compete with our neighbours in the United States, and the dairies of Great Britain. One imminent danger against which he thought it was necessary to guard, was that of multiplying too largely the factories in one locality, of having them, in short, "too thick to thrive." He pointed out the great benefit which had resulted from the associated system in lightening domestic drudgery, a boon which was especially acceptable to farmers' wives and daughters. With regard to the amount of cheese manufactured in Canada during the past season, the long and severe drought had seriously diminished the quantity, but the prices realized had, on the whole, exceeded expectation. The propriety of establishing a regular cheese market, as at Little Falls, was suggested, and the necessity of supplying only a first-class article was urgently reiterated. The address concluded with appropriate remarks on the importance of training the young to a proper appreciation of the dignity of the farmer's calling, and a love for rural life.

The Committee on appointments then reported recommending G. E. Chadwick, Esq., as President, and Mr. Noxon, Secretary and Treasurer. Mr. Chadwick declined the appointment and the report was referred back to the Committee. A short discussion followed relative to the Constitution of the association, the result of which was the appointment of a Committee consisting of Messrs. Moore, Noxon, Daly, Graham and E. V. Bodwell, M. P., to frame a Constitution.

After the business matters of the association had been concluded, Mr. Farrington opened the discussion on "The best method of cooling milk before cheese is made therefrom." He had attended the convention lately held at Utica, where this was the most important subject before that, perhaps the most important, convention ever held in connexion with the cheese factory. There several machines were shown; but some of them were too complicated, some too expensive; but the best he had seen was the invention of a gentleman from Syracuse. The principle of the machine referred to, is to apply cold in the form of ice or otherwise to the top of the vessel containing the milk.

He, however, thought that the cheapest and simplest method was to have a tin pail filled with ice floating on the surface of the milk. He had estimated the expense of thus cooling the milk of a 15-cow dairy and he found that fifteen tons of ice would suffice. He questioned the propriety of the popular process of deodorizing.

Mr. REYMER stated that formerly he had cooled his milk to 70°. After last Convention he had thought over the subject and lighted on the idea of a cooler, the model of which he showed to the meeting.

Mr. CLARKE asked Mr. Farrington if he thought ice essential to the proper cooling of milk.

Mr. FARRINGTON thought that though not essential, ice both as regards convenience and economy was to be preferred.

Mr. COLLET stated that in Gloucester they did not cool thin milk. He thought that chemistry was the best appliance to cool and preserve milk, and showed a patent liquid he had invented for that purpose. Mr. Clarke asked if he had any method to suggest by which he would secure the cooling of milk at the dairy.

Mr. FARRINGTON replied that the circumstances of the trade demanded every effort on their part if they wished to have a place in the cheese market; and he did not think that the slight labour entailed by his method, should deter dairymen from attending to it.

Mr. DAWSON in speaking of ice-houses said that his method was to lay slabs in a standing position on the floor of a roughly built shanty. On this, place four inches of sawdust for the ice to lie on, and cover the ice with twelve inches of sawdust. He had found the method work most satisfactorily.

Mr. CUNNINGHAM explained the construction of Oakley's Mechanical Cooler and deodorizer and Mr. Collet showed the virtues of his patent liquid. Mr. Oakley's model attracted much attention during the day.

The next subject brought under discussion was the practice of making cheese once a day. Mr. LASSER stated that he had formerly been in the habit of making cheese twice in the day, but had abandoned the practice, and found making once a day answer better. He also stated that he had used an agitator and ice for the purpose of preserving milk over night, and had found the method work admirably. He explained the construction of the agitators, which seemed to be a very ingenious contrivance.

Mr. CASSWELL advocated the cooling of milk and making cheese once a day. For in the course of his business he had found that invariably the best cheese came from the factories where the once-a-day system was carried on. And, for their own sake and his, he hoped all farmers would go into the system of making cheese only once a day.

Mr. GRAHAM, M. P. P. for Hastings, said he was not a practical cheese-maker, but had visited the United States, gathering information with the view of starting a factory. In his district \$143,000 had been paid for cheese. He maintained that, to get a first-class cheese and a good yield, it was absolutely necessary to carry out the system of making cheese once a day. He would like to compare the prices and methods of the east and west of Ontario. There must be some reason why prices in the west were so considerably higher than in the east. If the reason why could be pointed out, it would be advantageous to the farmers and to the country. He objected, both on economical and hygienic principles, to the use of colour-

ing matter in the manufacturing of cheese. He again recommended the comparison he had spoken of before, as being the best method of elucidating useful information, and urged the necessity of Canadian farmers using every effort to raise the quality of their cheese. This they must attend to if they wished to take their place in the market along with the American manufacturers. For he found that by passing Canadian cheese to England via New York, its price was enhanced four shillings a hundred.

A desultory discussion ensued, in the course of which one gentleman took the opportunity to express some rather unpatriotic notions, for which he was reproved in no unmistakable manner.

The meeting adjourned at six o'clock, and met again at eight.

EVENING SESSION.

Mr. Chadwick in the Chair.

The Committee on the Constitution reported that "the Committee appointed to prepare a digest of the Constitution, recommended that the Constitution as at present existing, should be retained, as they did not consider they had any right to alter it." The report was adopted.

The CHAIRMAN then introduced

Mr. WILLARD, who said that he considered it a high compliment to be in the position of delivering the annual address to this Convention. His public life was identified with the history of the dairy, and his aim had been, and always would be to elevate the agriculturists of America. It was clear that a new epoch was about to come round in the history of agriculture, and this was more clearly indicated by mechanical improvements, the appliance of Steam, fairs, conventions, and the introduction of agricultural colleges, where intellect began to show itself among a class who have hitherto, as "boors," been regarded as the very personification of ignorance.

The same thing was indicated by the great efforts that were being made to transfer the burthen from human muscle to the strength of iron and wood. The great obstacle in the way of improvement in agricultural matters has been the rough, exhausting work in which the farm labourer has been called upon to engage. The old modes of working farms, and the old system of locomotion afforded no time for improvement. It was little better than mere slavery; and so it was no wonder farming proved so unattractive to ambitious youths, and that these youths broke away incontinently from it.

Machinery must be regarded as the elevator of the agricultural interests of Canada; iron must be made the drudge.

The advancement in this respect may well fill the mind with astonishment. We have a mechanical ditcher to ditch for us; a sheep shearer to shear our wool; and the corn husker oven to husk for us 400 bushels a day.

He then referred to the object of Agricultural Colleges. The establishment of these institutions he advocated on the ground that they were needed; that a more scientific knowledge diffused among our farmers would make them better farmers; that they would tend to throw an enthusiasm amongst our young men, and that they would produce men who could not only conceive but carry out a system which will pay.

This last idea was the important one. Either an American farm must pay or it will soon be given up. On these grounds he maintained these schools ought to be supported, and besides, he thought that not only

males but females ought to be instructed into the workings of the machinery operations of the farm. If this were done fewer of them would urge their husbands, so soon as they got married, to give up farming and take to something else. There was no more derogation in a woman being able to advise and consult with her husband in his farming operations than there was in the artist's wife being qualified to criticise and advise her husband in his work. He maintained that it was the duty of the farmer to make the occupation pleasant to his wife and his daughters. If these Colleges were instituted, the law, physic and divinity, as professions, would be less deluged than they are now.

Coming to the interest in connection with which they were more especially convened, he regarded it as the most progressive branch of industry in Canada. The management of the Dairy required a higher range of capacity than was generally imagined, and so did the breeding of cattle and their management.

Factories and conventions had given rise to a spirit of inquiry, and improvement. Profit was after all the great question, but to ascertain what the profits of the trade had been was somewhat difficult on account of the factory system. In 1867 the shipments to England reached 50,000,000 pounds. Calculations founded on these figures raised hopes, and agents and small dealers in all directions sprang up, ready to speculate on what they considered the over production of cheese in America.

This had a depressing effect on the manufacture of cheese, reduced prices, and every one feared to handle cheese. In his market reports he had endeavoured to do away with this notion, and he was proud to say his statements had raised prices and vitalised the trade in a way far beyond what any one had ever anticipated.

In 1867 the production of American cheese was 215,000,000, and in Britain the production amounted to 179,000,000. The consumption in England in that year was 309,000,000. For the two nations we have thus a demand for 75,000,000 more than both produce. In the mean time the Dutch supply the deficiency—why not we, when we can produce an article so superior to the Dutch? Besides the increase of population demands an increase in the manufacture, as well as the natural increasing demand for that article, and he questioned whether over-production was possible in America.

Last year had been a successful one for dairymen, and there was still a large demand in England and Holland. The following figures might be of interest as showing the immense production in New York city, County and other cities and districts:—

	Boxes, 1867.	Boxes, 1868.
In New York City ..	289,000	180,000
“ “ County.	313,000	50,000
“ Boston ..	50,000	15,000
“ Philadelphia ..	65,000	25,000
“ Baltimore....	45,000	15,000
“ Jobbers' hands....	100,000	25,000

The lecturer then gave a detailed statistical account of the exportation of cheese from New York to Europe in the years of 1867 and 1868. From which it appeared that in 1867, 1,008,759 boxes had been exported, and in 1868, 708,784 boxes. He had dwelt on this point, as he considered it one on which every farmer should be instructed. He then entered upon a discussion of the "causes influencing the flavour of the dairy products." The first desideratum he argued for was clear, cold water and thorough

cleanliness. This was necessary, both for the use of the animals and for the proper preparation of the cheese. He then referred to stables, which, in many cases, were simply horrible to look at, deteriorating at once to the milk and to the females engaged in the dairy. In this respect, the English were ahead of us. And the result of our carelessness in this matter was the lowering of prices for goods most of which were in every respect superior to English goods. He then referred to milking, in the course of the discussion of which subject he went into a lengthened description of the physiology of the udder. Before milking the teats should be washed—this being both a humane and cleanly measure. If the cow is well used, she will show a pleasure in being milked. On the whole, the manufacture of American cheese—though there was still room for advancement—had shown marvellous signs of improvement, and in a few years doubtless would stand at the top of the market; and all that was wanted to do this was *uniformity* of excellence, and the eliminating of those peculiar flavours which so frequently crept into American cheese. What was wanted was *good* cheese and butter. Poor butter was over-produced both here and in America, and the sooner something else took its place the better. For prices were getting to "poverty" proportions, and this was all owing to bad material.

The lecturer then entered into a long dissertation on the properties of milk, and, in the course of his remarks, described a machine invented by Mr. Harrison, of Gloucester, England, for the separation of whey from curd, which machine, he argued, was well adapted for this purpose, as well as to save in loss of both butter and curd. He then referred to a correspondence he had with Mr. Gail Birken, the inventor of a condensing machine, and showed samples of cheese produced by the process. The lecturer then went on to describe the qualities of butter, and showed that it contained a large amount of saccharine matter, and hoped that soon some process would be discovered which would enable us to eliminate this matter from it.

The next point taken up was the "cooling of milk." Naturally the temperature of new milk is 90°, and, if exposed to the air, it at once begins to decompose, hence the necessity of the cooling process. 60°, he thought, was the normal temperature for milk, and it can be kept thus for 36 hours. It was well known to every butter merchant what awful stuff was thrown into the market under the name of butter, and all owing to a want of attention to the cooling of milk. Many machines had been invented for this purpose; some involved in their construction fans, some ice, and in fact the devices in this respect were innumerable. But he thought that an absolute necessity in any cooling machine was a cleaving adjunct. Without this no machine could be regarded as perfect. And he might mention that "papier mache" was likely to form an important article in the construction of cooling machines; being, as it is, odororous, a non-conductor, and easily kept clean. These matters, he thought, were of the utmost importance, and deserved to be thought over and studied by every man and woman connected with the dairy. The conclusions from these remarks were, 1st. That no milk is good which is made from filthy, stinking waters of troughs and frog ponds. 2nd. That no milk is good that comes from cows dogged and over-driven in hot weather, from the pasture to the stable. 3rd. No milk is good that comes from cows pound-

ed and kicked, and cruelly treated by brutal men. 4th. No milk is good that comes from diseased cows—cows that have sores filled with pus; or that have udders broken, and running with corruption. 5th. No milk is good that comes reeking with manures and filth from the stables. These clauses should be posted on the lintels of every stable, and the man who did not attend to them should be fed on the milk of his own foul dairy. The lecturer then proceeded to dilate further on the manufacture of butter and cheese, referring to many scientific theories, suggested for the improvement of the manufacture of these articles; and, after speaking for two hours and a half, sat down amidst loud applause.

After passing a cordial vote of thanks to Mr. Willard for his able address, the Convention adjourned till Thursday, at nine o'clock.

SECOND DAY'S PROCEEDINGS.

The Convention resumed business on Thursday morning at 10 o'clock. The number present was as large as on the previous day, and the presence of a considerable sprinkling of ladies who seemed to be peculiarly interested in the proceedings of the Convention, went far to relieve it from the dry business characteristic which generally attaches to such gatherings.

Mr. CHADWICK occupied the chair, and began the proceedings by calling upon

Mr. DALY, who with reference to the constitution of the Association, moved, that article 5 be amended by striking out all after the word year, and inserting the following in lieu thereof, "at such place as shall be decided upon by the members of the Association at the annual meeting, and that members should be allowed to vote either in person or by proxy."

The original article referred to reads as follows:—

Art. 5. The regular annual meeting shall be held on the first Wednesday in February of each year, and at such place as the Executive Board shall designate.

A lengthened discussion ensued, in the course of which Mr. WILMOT moved as an amendment on the motion, "That the clause referring to voting by proxy be struck out of the motion."

Mr. GRAHAM, M. P. P., Hastings, took part in the debate, and remarked that the Canadian Dairymen's Association ought to be what it pretends to be, a National Association. Hitherto it had been too western. Not that he had any sympathy with that spirit of antagonism which has exhibited itself even within the walls of the Legislature, between the East and West of Ontario. That was a thing to be avoided. Yet he thought unless the East was recognised by this Association, a new Cheese Association would be formed east of Toronto. In the course of his remarks, he suggested that a representative of the Canadian Cheese Association should be sent to Europe, who, by investigating into the wants there, could advise cheese manufacturers here as to the nature, quality and character of the goods they should produce. With reference to the selection of the place of meeting which this motion aimed at, he thought next year Toronto should be selected, and, by going thither, he was confident that both pecuniarily and otherwise the Association would be benefited, and would take a position as a National Institution, which it does not at present occupy. Proxy voting was an absolute necessity, and a just arrangement in such an Association as this. Many members of the Association lived hundreds of miles east, and could not afford to come to Inger-

sol, and he thought it was but fair that these men should have a voice—though a silent one—in the management of the affairs of the Association.

Mr. BODWELL, M.P., took exception to proxy voting, and complained of the remarks of Mr. Graham relative to the antagonism referred to as existing between east and west. He did not think that such antagonism—either in connection with cheese-manufactories or aught else—should be ever referred to, in public meetings. He considered that such an Association as this should hold their Conventions in manufacturing centres, and not in such a place as Toronto, where no sympathy existed towards them. He deprecated the idea of a separate Association for the eastern part of the Province, and hoped that notion would proceed no further.

Mr. FARRINGTON, while appreciating the desire of the people of the eastern section of the Province to have the Convention held occasionally in their midst, was thoroughly opposed to proxy voting.

Mr. DALY thought that the people of the east had a right not only to vote by proxy, but to have the Convention held in their section of the Province. Such a meeting was vitalising to the energies of a district, and he thought the east, from the sympathy and support it had given to this Association, merited the benefit of it. The amendment was put and carried.

The next question taken up was "the diffusion of exact knowledge respecting the rates of the cheese markets."

Mr. HAMILTON moved, seconded by Mr. HARRIS, "That the President and Secretary be appointed a Committee to make arrangements with the proprietors of some paper or papers to publish reliable reports of the cheese market in Montreal, Toronto and Ingersoll, and likewise the obtaining of correct Cable reports."

Mr. GRAHAM, M.P.P., Hastings, objected to the word "GLOBE," as contained in the resolutions, and thought that the word "Leader" and other names should be inserted, if any.

Mr. HAMILTON had inserted the word "GLOBE" in his resolution, as that paper was the recognized medium for the conveyance of commercial intelligence more than any other in Canada. He had no objection to eliminate the word "GLOBE" from his resolution. The motion, with this modification, was agreed to.

PLACE OF MEETING.

The Committee appointed to consider this matter gave in a report to the effect that Toronto should be fixed upon as the meeting place of the next Convention.

Mr. HARRIS objected to Toronto being selected as the place of meeting of the next Convention. Oxford County, this year, had given 103 members to the Association, which was ten times the number given by any other county in Canada.

Mr. GRAHAM, M.P.P., offered to guarantee 150 members on the spot from the County of Hastings, if the Convention would come next year to Belleville.

Mr. NOXON, Secretary, thought Ingersoll had a right to all the benefits, if there were any derivable from such annual Conventions. The people of Oxford County had first conceived the idea of forming the Association. They had formed it, had supported it in its infancy, and it was hard that they should now be deprived of the beneficial effects accruing from the result of their exertions by the removal of the Convention to a place

so distant as the City of Toronto. He did not think that, in any single respect, would the Association be benefited by such a move.

Mr. GRAHAM, M. P. P., Hastings, moved a substantive motion to the effect, that Belleville be the place of meeting at next Convention.

Mr. HARRIS moved as an amendment, that the Convention meet next year at Ingersoll.

The amendment was carried by a large majority. The Convention then adjourned till the afternoon.

AFTERNOON SESSION.

As the business proper of the Convention had been gone through, the afternoon session was devoted to a discussion of the following questions:—1st. What is the cause of floating curds, and is liquid annatto better than ball annatto? 2nd. The propriety of mixing evening and morning's milk. 3rd. Does colored or non-colored cheese bring the highest price? 4th. What particular salt should be used? 5th. The utilization of whey. 6th. The prevention of cheese huffing.

On these points a considerable difference of opinion seemed to exist amongst the members of the Convention.

Mr. GRAHAM argued strongly for the non-colouring of cheese, and thought that every effort should be made to do away with this unnatural practice.

Mr. WILLARD stated that in London, England, coloured cheese brought the highest price; but as we went northward towards Manchester, Preston, Glasgow, &c., non-coloured cheese was preferred; and besides, he had heard it stated in England, that red lead was used as a colouring agent. This was deplorable, and had a most adverse effect on the Canadian cheese market.

Goderich salt was recommended.

Mr. FARRINGTON stated that whey could be utilized to great advantage in giving it to cows as a beverage; and advocated the mixing of morning and evening's milk.

About half-past 5 o'clock, after awarding votes of thanks to the President, Secretary, the members of the various committees, and the ladies, the Convention broke up.

American Dairymen's Association.

The annual meeting of the American Dairymen's Association was held in Utica on Wednesday and Thursday, January 13th and 14th, Governor Seymour presiding. We condense the following account from a full report in the Utica Weekly Herald.

The preliminary business of appointing committees and making financial arrangements occupied the morning of the first day. In the afternoon the discussion of dairy questions commenced, and the first subject brought under consideration was the

"Cooling of Milk before making Cheese therefrom, and the cause of the early decay of American Cheese."

The first speaker was Mr. Arnold, of Tomkins, who adverted to the history and present extent of the factory system of cheese-making, and said that the State of New York now manufactured over 200,000,000 lbs. of cheese annually. Much of this was exported, but with some exceptions, English cheese outsells

American, and the causes of the inferiority were various, some of them being bad re-nnets, inattention to cooling, &c. The odour of new milk was caused by the waste materials from the animal's body, which if not expelled from the milk before it was made into cheese, would very deleteriously affect the manufactured product. Cows in a feverish state will contribute much to this bad odour, and the milk of a single cow in this condition will affect a whole vat of milk. Bad food, stagnant water, were also frequent causes of bad odour and consequent flavour. To get rid of this, the speaker recommended, as an important agency, the exposure of the cooling milk to the atmosphere.

Dr. Wright, of Oneida, was the next speaker, and urged the importance of cooling milk as soon as possible after it had been drawn from the cow. He spoke also of the necessity of attention to re-nnets of good quality, proper salting, and the use of suitable hoops. The morning milking should be done early, and the milk delivered at the factory by 9 a.m. Pails of tin ought in all cases to be used.

Dr. Westcott, of Onandaga, spoke next, especially in reference to butter making, and thought the greatest advantage was obtained by slowly cooling the milk. The best method of cooling, in his opinion, was that which effected the most ready egress to the gases, and those coolers most easily cleaned and the cheapest were the most desirable. He would apply the cooling process at the top of the fluid, as to commence at the bottom is an uphill business.

Mr. Joseph B. Lyman, Agricultural Editor of the New York Tribune, and of the *Hearth and Home*, followed on the same subject, and cited as an evidence of the good results of cooling milk, the successful practice of the Delaware farmers, who managed to keep their milk at about 60°, and their butter commanded a price of \$1 per lb. the year round. He recommended all dairymen to keep ice on hand, and have an ice-house of their own.

Ex-President Peters, of the State Agricultural Society, expressed his views, which were in accordance with those of Dr. Westcott.

Mr. Bartlett, of Ohio, the next speaker, favoured the opinion that the odour in milk was contributed by the cow, and was augmented by "lazy boys and smart dogs" inducing a feverish condition by unnecessary driving. Putrid and other decomposing matters in the pasture also sometimes gave rise to bad odour in milk.

The next subject brought forward—"New features and improvements during the past season"—was dropped without discussion, and the importance of "Systematic experiments in cheese making" came under notice.

Mr. Farrington, of Canada, adverted to a number of experiments which he had insti-

tuted in reference to the previous subject of discussion, the cooling of milk. He had not much confidence in the efficacy of ice for this purpose. He thought we needed experiments in different temperatures of salting and putting to press. These experiments should be made under the same conditions, and one point taken up at a time. Carefully conducted experiments could alone decide many doubtful questions. An experimental dry house should be made of wood, with non-conducting walls. This he believed would do away with the strong flavour, and make American cheese the best in the world.

At this stage of the proceedings, the convention took a recess until the following morning. In the evening a very large audience assembled to hear the address of Professor Gamgee on the "Diseases of cattle and their influence on milk." This very interesting and important lecture is fully reported in the *Utica Weekly Herald*, but in this brief account a very imperfect summary of its leading topics only can be given. The lecturer introduced his subject by very strongly enforcing the importance of veterinary science, and the necessity of giving it Government support. He alluded to the disastrous consequences of a too tardy recognition of this principle in Great Britain, where, until the days of Youatt, the subject of cattle disease was ignored. Steam power and free trade sentiments virtually converted the British Isles into a part of the European continent, so far as its cattle trade was concerned; and whereas for long the ocean had protected the herds and flocks on their ever-green pastures, the hand of time brought facilities of communication with distant lands, which have cost the nation millions upon millions sterling in matchless sheep and cattle. Taking into account the losses from pleuro pneumonia, foot and mouth disease, and the small pox in sheep, he estimated that England had probably lost one hundred millions sterling during the past twenty-eight years. The farmers of this continent should take warning from these facts in time. The losses sustained here have been and are enormous—in all probability exceeding one hundred million dollars in gold every year, and the excitement, the panic of 1863, produced by the American cattle plague, may result in good, and may lead to national efforts. In this matter he would advise Americans to look to France, Prussia, Austria, and other continental nations that recognize it as their duty to provide, even from the public purse, for the education of a profession whose special province it is to prevent poverty and famine, for these are the inevitable results if cattle plagues be permitted to disseminate at pleasure. This country has as yet been visited by only one of the great contagious cattle plagues of the East which have traversed the Old World in the course of civilization, and as history repeats itself, may in a similar manner travel through the New. Professor Gamgee then gave an interesting account of the foot and mouth disease, or Epizootic Aphtha, of Europe, one of the most easily propagated of contagious disorders, from which, however, the intervening ocean had hitherto protected this country. He referred to the occurrence in the human subject, simultaneously with its prevalence in cattle, of a disorder apparently originating in the virus of affected animals, the disease being communicated by the milk and in other ways. He considered it the one plague of cattle and the other was blooded animals which is communicable to man, and that the poisoned milk of affected cows is probably the cause of many deaths among

children—deaths which medical men have not learned to trace to their proper cause. The next disease that came under review was the lung plague, or pleuro-pneumonia, a malady in the United States that is the very opposite to epizootic aphtha in point of incubation, duration and result. "It is, without exception, the most insidious of all diseases, and none but the careful student of history can make out whence it comes and whither it goes. On its first manifestation in different parts of Europe, it has usually been regarded as a common inflammation of the respiratory organs, of non-contagious character, and it has been only after years of research and observation that the leading veterinarians of the world have learned that it is never developed except as the result of communication from sick or convalescent to healthy cattle. The people of Massachusetts have succeeded in expelling it from their territory, but it is as bad as ever now in some counties in five distinct States, and if some decided and effectual effort be not made at once to extinguish it, it will surely and disastrously assail the stock of western and southern graziers, and, as it has done in Australia, will inflict an irreparable injury on the whole country. Rinderpest moves on more rapidly than pleuro-pneumonia, and kills so fast that it is like an army moving in the invasion of a land. It is visible, and the full measure of the danger incurred is appreciated by the people it is destined to victimize. The lung plague is the assassin that stabs in the dark. It is masked, stealthily in movement, and strikes not only to kill, but to kill by slow poison. You may have heard of the distant but certain death of a man that accidentally inhales binoxide of nitrogen. No symptoms appear for weeks, and then ulceration, of the air passages occurs, which is inevitably fatal. So it is with lung plague. An ox rubs its nose against an apparently healthy animal of its kind, on a road or in a market. Thirty, forty, and even sixty days elapse, during which the ox may have been transported ten or fifteen thousand miles, say from London to Australia, as that has been done, and then it is ready to contaminate and kill all the cattle that come within the range of its deadly influence. How can such a disease exist anywhere on this continent without a tolerable certainty that sooner or later it will spread like the thistle and noxious weeds in general, wherever circumstances at all favor the transportation of cattle?" This disease, Mr. Gamgee observed, was especially prevalent in dairy districts. The milk and flesh of animals affected with it were injurious, if not positively poisonous. Such a malady could only be eradicated by the most vigorous measures, but no efforts should be spared by the Government and the country to attain an end of such momentous importance.

The lecturer next spoke at considerable length on the prevalence of abortion in cows, which had caused such serious loss in several States. He adduced a mass of evidence to show that the principal cause of this malady was ergotism, the poison from a fungous growth on certain grains and seeds. The most common example is the ergot of rye, but a similar disease affects a large number of common grasses, and these, there is much reason to suppose, produce abortion among cattle grazing on them. "When ergot is not the cause of premature births in animals, we find, especially in the case of cows, that accidents operate, and when they have suffered once they are extremely liable to suffer repeatedly. There is no doubt, also, that some cows are apt to become excited and made to expel their young by being placed with other cows liable to the same condition. In Europe, however, and probably here, the most

frequent cause of abortion is ergotism. The means of prevention consist in excluding animals that are known to be liable to the disease, draining lands, ploughing deep, turning up old pastures the grasses in which are affected with ergotism, and sowing other grasses thickly. The prevention of the disease implies in many instances good farming; and although farmers cannot individually control the spread of a contagious plague, you will find that there are few diseases which cannot be prevented by proper precautions at home. Did time permit, I could readily prove to you that where British agriculture is most advanced, there diseases of animals are most rare. Here it is supposed that cattle diseases are becoming more common. It is true that the lung plague and the Texas fever have materially swelled the mortality lists lately, but indigenous affections recede as a rule just in proportion as drainage, effectual scarification of soils, the intelligent use of artificial manures, and the proper management of domestic animals are appreciated and practised." Mr. Gamgee concluded his address by urging again the importance of energetic action with the view of expelling the lung plague from the country. Reference was then made to the Professor's process for preserving meat, which was explained, and its probable utility in preventing the tainting of cheese, was suggested. If this preserving process can be applied to cheese, the result will be of immense importance.

On Thursday, Jan. 11th, the Convention re-assembled, and discussion was resumed. Mr. Webb, who represented the shippers of cheese from New York to England, was one of the first speakers. The present position and future prospects of American cheese in the English market was the subject of his remarks. The last July make of American and Canadian cheese was of very inferior quality. Not a single dairy stood the test of the trying English market. The August and September make proved to be of fine quality, and the improvement was readily appreciated across the Atlantic, and raised both the demand and price. Colour was important in England, and it was necessary, in his opinion, to provide for this prejudice. The favourite colour was a bright straw. The good qualities of even some of the best American cheese are not permanent, and it was most important to devise means for making cheese that will retain its good qualities for a reasonable length of time.

Mr. Peters, agricultural editor of the *World*, concurred in the opinion of Mr. Webb respecting the colouring of cheese to suit the English market.

On motion of Mr. Weeks, the thanks of the Association were tendered to Prof. Gamgee, Mr. Webb, and others, for their very able addresses.

The President, Mr. Seymour, next made some remarks on the factory system on this continent, which was yet but imperfectly developed. With regard to the question of over-production, he contended that, provided the quality of American cheese was good, the European market would take all the surplus produce of this country. It was important, however, that a home demand should be created, and he considered cheese to be one of the cheapest and most wholesome articles of food.

The following resolution was then passed: "That the Government be requested to include cheese in the army and navy rations."

Mr. Farrington expressed his objection to colouring cheese, which he considered decidedly injurious to its quality, and contended that instead of providing for the prejudice in this respect, we ought to educate the people of England to a better taste and judgment in the matter. The subject was discussed, but no resolution adopted.

On motion of Mr. Williams, of Oneida, it was resolved:—

“That the recent extension of the contagious lung disease among cattle demands instant action on the part of graziers and the Legislatures of the several States in which the disease is found.

“That the American Dairymen's Association respectfully urge on Congress to furnish such aid to the Department of Agriculture as may secure the regular publication of information regarding diseases of animals, and the adoption of means for the prevention of such diseases.”

This case took up the morning session of the second day. In the afternoon, after some general business, the question of “floating ernds” was taken up. Mr. Moon, Mr. Chapman, Mr. Bartlett and Mr. Davis took part in the discussion. Impure or tainted milk was considered the main cause of this defect.

Lieut. Gov. Alvord, of Syracuse, next submitted the following resolutions, which were carried unanimously:—

“Whereas the subject of abortion in cow has been a matter of consideration in this Convention, and

“Whereas the malady in question is one that has long devastated the herds of America, and is one upon which larger information is needed,

“Resolved, that this Association refer this question to the trustees of the Cornell University, and respectfully request them to institute a careful and thorough investigation of the malady, its probable cause, its prevention or cure. Also, that we likewise request the trustees of the said University to furnish to the Association full information respecting the chemical properties of milk and rennet.”

The following officers were then nominated for the ensuing year, and duly elected:—

President—Horatio Seymour, of Oneida.

Vice-Presidents—T. G. Alvord, of Onondaga; J. L. Wight, of Oneida; S. T. Miller, of Lewis; A. Barnham, of Chautauqua; John W. Bush, of Chemung; B. G. Moss, of Greent; C. E. Ch dwick, Canada West; N. Dwight, Mass.; W. G. King, Illinois; A. Bartlett, Ohio; R. C. Wickham, Vermont; T. S. Gold, Connecticut; E. H. Wilder, Wisconsin; S. Howard, Michigan; N. W. Woodbine, North Carolina; J. Stanton Gould, Poughkeepsie; M. J. Harden, Kentucky.

Secretary and Treasurer—Gardner B. Weeks, of Syracuse, N.Y.

After passing votes of thanks to the President, the Secretary, and the representatives from Canada, the Convention adjourned.

The attendance throughout the session was very full, there being even a larger number in the hall just previous to adjournment than on the opening day. The dairymen generally express themselves as highly pleased with the success of the Convention, which is generally considered to have surpassed any previous one.

Kicking Cows.

This is one of the most troublesome and tormenting things on the farm, and there is no cure. Severity and beating are worse than useless, they hurt not only the animal but the milker. If the cow kicks, and is not so extraordinarily good that her evil habit is overbalanced by her good qualities, sell her, or fatten her, but never beat or ill use her. It is a “habit,” and she cannot help it. If kindness will not do, nothing like its opposite will. We had at different times most inveterate kickers, and the writer milked them with his own hands for many years. We tried the beating, tying down the back, and every other mode of severity without avail: one of the cows (the worst kicker of all) was a perfect marvel for milk. After the calf was gone, she would give a perfect flood of milk for many weeks, so much that to mention the quantity would expose us to the charge of exaggeration. If not secured, she would give the pail brim full, and just as the stripping was finished she would lift her leg, pop it into the pail, and send all flying. If she was in a good temper she only put her leg into the pail but refused to take it out, of course spoiling all the milk. Her hind legs were tied together without effect, she was too expert to be conquered that way, so we got a rope with a slip noose at the end, put her leg into it, and tied it back so far that she could not reach the pail. This conquered her, and if she was tied so that she could not back down, the milk was secured. She would always try, however, but never till her udder was relieved of milk. We kept her many years, and a more profitable animal for the dairy no one ever owned. Sometimes she would behave well for some time, but if the rope was neglected the old habit was too strong for her, and the milk was destroyed. She had been so badly beaten for kicking before we had her, that her temper was soured; but after some time and when severity was no longer practised, she became as kindly as any others, except at milking time; we were however so convinced from old experience of the hereditary tendency of the habit, that good as she was, we never saved a calf from her. They were calves indeed! At six weeks old they weighed from 36 to 40 lbs a quarter of veal, and it was as fat as veal could be. We had several other kickers, but after once understanding them, never beat or punished them, but always secured them in the way above mentioned.

Cow-Stable Floors.

Throughout the country not more than one barn in every ten can be found that contains a stable floor so constructed but that the cattle are compelled to lie in their own filth, and the sides, legs and udders of the cows are in a most untidy condition when the

morning milking is done, and unless a great deal of washing and painstaking is practised the milk cannot be carried from the stable in its original purity.

Now but little work is required to remove the one great cause of discomfort to cattle in stalls, and the almost whole cause of having winter milk unpalatable and impure. A platform should be built for the cows to stand upon, extending far enough back from the stanchions to give sufficient standing room, and no more. In this way a dry, clean place to lie upon is secured.

There are different modes of making this platform. Where a new floor is being put in, a short part can be laid at the back and the balance laid at an elevation of two or three inches above; the last, of course, overlapping the first.

On floors already laid, a good way is to spike down two by three scantling a little back of where the hind feet will come, and fill the space between this and the stanchion-sill with sawdust or dirt. This will make a good bed for the animals to rest upon, and it will also absorb all the moisture that may fall upon it. If dry sawdust, spent tan-bark or dirt are put in, moisture will not be contracted in sufficient amount to injure the floor below, unless stock other than cows are kept upon it.

Another good way is to lay down three strips of inch boards, and upon these lay the platform of two inch plank, giving an elevation of three inches. Air will circulate between the two floors and prevent rot. It is not economy to nail one floor to another without space between.

The best way to find the exact spot at which the platform should terminate is to go to the stable when the cows are in the stanchions and mark the distance which they require to stand upon. The object is to have the excrements drop upon the lower floor leaving the platform clean and dry.—*Ohio Farmer.*

UNPROFITABLE DAIRY COWS—It is extraordinary how many cows there are in the country that do not make an adequate return for the cost of their keep. The majority of the cows in farmers' hands do not, we think, average a yield of 5 pounds of butter each per week through the summer. There seems to be no definite object aimed at in raising animals for the dairy by very many farmers. It costs as much to keep a poor cow as a good one. Then why not give a little more attention to the points required in an animal to ensure its proving profitable for the dairy. Any cow that gives less than a pound of butter per day, from May to December, had better be made into beef as soon as possible. There is too much of a hap-bazard system pursued in breeding and rearing animals from our native stock, which under proper management can produce good dairy cows, averaging a yield of 8 to 12 pounds of butter per week each for eight months in the year.

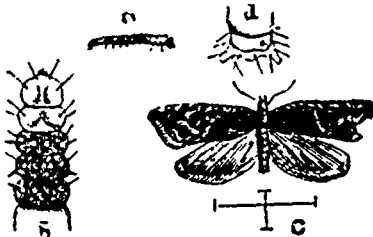
J. M.

Kenwyn Farm.

Entomology.

Strawberry Worms.

The Strawberry Leaf-Roller (*Anchylopera fragariae*, N. Sp.).—For nearly two years, we have been acquainted with a little greenish leaf-roller, measuring about one-third of an inch, (See Fig. a) which in certain parts of North Illinois and Indiana, has been ruining the strawberry fields in a most wholesale manner; and which also occurs in Canada, judging from an account in the CANADA FARMER, of Aug. 1, 1866. It crumples and folds the leaves, feeding on their pulpy substance, and causing them to appear dry and seared, and most usually lines the inside of the fold with silk. There are two broods of this leaf-roller during the year, and the worms of the first brood, which appear during the month of June, change to the pupa state within the rolled-up leaf, and become minute reddish brown moths (Fig. c) during the



fore part of July. After pairing in the usual manner, the females deposit their eggs on the plants, from which eggs in due time, hatches a second brood of worms. These last come to their growth towards the end of September, and, changing to pupæ, pass the winter in that state.

We first heard of this leaf-roller in the spring of 1867, when it did considerable damage at Valparaiso, Indiana, and we were informed by Mr. N. R. Strong, of that place, that in 1866 they continued their depredations with him, and destroyed 10 acres so completely as not to leave plants enough to set half an acre, and that in consequence of this little pest in conjunction with the White-grub, he has had to abandon strawberry culture.

When we met the *ad interim* committee of the Illinois State Horticultural Society, at Lacon, in the beginning of July, 1868, we received from these gentlemen a quantity of infested strawberry leaves, from which in the course of the next two or three weeks we bred many of the moths. These specimens had been collected at Mr. Bubaugh's place, near P. inceton, Illinois, where they were said to be very abundant, and to have completely destroyed one strawberry patch containing several acres.

Subsequently we received another lot of specimens from Mr. W. E. Lukens, of Sterling, Whiteside Co., Ill., with the following remarks upon this very important subject.

"Where these insects are very thick I would never think of raising strawberries. It is strange that I have never noticed any of them work upon this side of the river; while on the south side, for a mile up and down, they are ruining the crops of berries. Removing the plants does not take with them the moths nor the eggs, so far as has been observed. A gentleman by the name of Kimball, of Prophetstown, had his crop a few years ago entirely destroyed by this insect, though it amounted in all to two or three acres. I hear of a great many men in other places having their crops burnt up with the sun, and have no doubt that it was the leaf-roller, and not the sun, that was the real author of the damage. As for myself, I have on this account entirely quit the business of growing strawberries."

The only modes of fighting this new and very destructive foe of the strawberry—which however seems to be confined to northerly regions—are, 1st, to plough up either in the spring or the fall, such patches as are badly infested by it, by which means the pupæ will probably be destroyed; and 2nd, not to procure any plants from an infested region, so as to run the risk of introducing the plague upon your own farm.—*American Entomologist*.

NOTE BY ED.—In the CANADA FARMER, of Oct. 15, 1867, page 311, we gave a further account of some Strawberry Worms (besides the notice referred to above on Aug. 1, 1867,) sent us by Mr. Arnold, of Paris, Ont. The description there given of one of these corresponds with the "Strawberry Leaf-roller," described in the above extract from the *American Entomologist*; we can, therefore, conclude that Canada also is infested by this new pest. Should Mr. Arnold, or any other strawberry grower, find any of these or other insects on his plants during the coming season, we beg that he will forward some to us, that we may make another attempt to rear them, and so set the matter at rest.

Ants and their Habits.

No family of insects is more widely distributed and more generally familiar to mankind than that of the Ant, while its habits of industry and activity have been proverbial among all nations since the days of Solomon. It belongs to the same order of insects (*Hymenoptera*) as bees, wasps, and saw-flies, and possesses many of the singular characteristics of the first-mentioned. Like the bees, also, it is divided into three classes or sexes—males, females, and workers. Both males and females are winged, but the males are much smaller than the females, while the wingless workers are smaller still. In many species the workers consist of two forms—the worker major or soldier, which has a large cubical head, and the worker minor, which has the usual small head.

The history of an ant's nest is, briefly, as follows (according to Dr. Packard):—"The workers only (but sometimes the winged ants) live through the winter, and are found early in spring taking care of the eggs and larvae produced by the autumnal brood of females. In the course of the summer the adult forms are developed, swarming on a hot, sultry day. The little yellow ants, abundant in paths and about houses, generally swarm on the afternoon of some hot day in the first week of September, when the air is filled towards sunset with myriads of them. The females, after their marriage flight in the air, may be seen entering the ground to lay their eggs for new colonies, or, as Westwood states, they are often seized by the workers and retained in the old colonies. Having no more use for their wings, they pluck them off, and may be seen running about wingless. According to Gould, an English observer, the eggs destined to hatch the future females, males and workers, are deposited at three different times. The nests of some species are as much as six feet in diameter, and contain many thousand individuals. Some ants build nests of clay or mud, while others inhabit hollow trees. They delight in feeding upon the sweets of flowers, and the honey of the plant-lice, which they milk as we do cows. In this country, though sometimes troublesome in invading the household stores of sugar and sweetmeats, and detrimental to the beauty and smoothness of lawns, they may yet on the whole be classed among our useful insects, as they perform the duty of scavengers, feeding on decaying animal matter, and assisting in the disintegration of rotten logs and stumps."

The habits of the ants in these northern countries, though very curious and interesting, when closely observed, are far surpassed in all the elements of wonder by those of more tropical climes. Long descriptions of their marvellous performances are given in the works of Kirby & Spence, and other naturalists. The following short notices, which we have selected for their brevity, are culled from the pages of Dr. Packard's new work, *A Guide to the Study of Insects*.

In Western Africa, near Cape Palmas, are found the terrible Driver-ants, which march in vast armies, driving everything before them, so formidable are they from their numbers and bite, though they are of small size. They are said to cross streams, bridging them by their interlocked bodies. We ought assuredly to feel thankful that these and other pests are not found in this country.

Many species of ants are slave-holders, thus furnishing, perhaps, the only natural argument for the abominable practice amongst men. They are of a reddish or pale colour, and make regular slave expeditions against the "negro colonies" of a smaller black species, pillaging their nests, and carrying off merely the larvae and pupæ. The victors educate them in their own nests, and on arriving at maturity the negroes take the entire care of the colony of their owners.

Latreille justifies this proceeding by stating that the reddish ants of Europe are physically incapable, on account of the form of their jaws, and the accessory parts of their mouth, either to prepare habitations for their family, to procure food, or to feed them. Huber adds that these slave-making ants, when left to support themselves, perish from pure laziness. They are waited upon and fed by their slaves, and when these are taken away, the masters perish miserably. Sometimes they are known to labour, and were once observed to carry their slaves to a spot chosen for a nest. Another species, which is also found in America, is not so helpless. Kirby states that they assist the negroes in the construction of their nests; they collect their sweet fluid from the aphides, and one of their most usual occupations is to lie in wait for a small species of ant on which they feed; and when their nest is menaced by an enemy, they show their value for these faithful servants by carrying them down into the lowest apartments, as to a place of the greatest security.

In Mexico and Texas is found the curious Honey Ant, which has two kinds of workers, one of the ordinary form, which performs the usual active duties of the nest: the other and larger worker is inactive, and does not leave the nest—its sole purpose, apparently, being to elaborate a kind of honey, which it is said to discharge into prepared receptacles, and which constitutes the food of the entire population of the colony. From this honey an agreeable drink is made by the Mexicans.

The Agricultural Ant of Texas is described by Mr. Linneceum as living in populous communities, building paved cities, constructing roads, and maintaining a large military force. In a year and a half from the time the colony begins, the ants previously living concealed beneath the surface, appear above and clear away the grass, herbage, and other litter, to the distance of three or four feet around the entrance to their city, and construct a pavement, consisting of a pretty hard crust about half an inch thick, formed of coarse sand and grit. At least six months previous to the rainy season, they begin to build mounds, rising a foot or more from the centre of the pavement, and into neatly constructed cells, within these mounds, they carry their eggs, young ones, and stores of grain, to save them from inundation during the period of rain. No green herb is allowed to grow on the pavement except a certain grain-bearing grass. This grain, when ripe, they harvest, removing the chaff, while the clean grain is carefully stored away in dry cells! Mr. L. avers that the ants even sow this grain!

Such are a few of the marvellous accounts given us of the doings of these wonderful little creatures. Our space forbids us relating more at present; but we shall bring before our readers on another occasion some stories of an apparently even more incredible nature, though their truth is vouched for by well-known naturalists.

Strength of Insects.

Men of ordinary frame and average physical powers are wont to look with wonder upon the Herculean performances of the trained gymnasts, who occasionally traverse the country to give exhibitions of their extraordinary feats of strength and agility. The bending of a poker across the arm, the endurance of an anvil on the breast, even when beaten with sledge-hammers, the lifting great weights with the teeth, and similar performances, are looked upon as deeds of almost superhuman power. But after all, when we take size and weight into consideration, what are man's boasted powers when compared with those of many a despised and apparently insignificant beetle!

Some curious researches respecting the strength of insects have recently been made by a foreign naturalist, M. Felix Plateau, of Brussels, and are related by Figuiet in his *Insect World*. From this source we have derived much of the following curious information.

Many of our readers have probably observed about the market in Toronto a machine called a dynamometer (strength-measurer), for registering the powers of the muscles. It consists of an oval spring, of which the two ends approach each other. When they are pulled in opposite directions, a needle working on a dial marked with figures indicates the force exercised on the spring. It has been found, from the use of Regnier's instrument, that "the muscular effort of a man pulling with both hands is about 124 lbs., and that of a woman only 71 lbs. The ordinary effort of strength of a man in lifting a weight is 292 lbs., and a horse in pulling shows a strength of 675 lbs; a man, under the same circumstances, exhibiting a strength of 90 lbs." From these results it appears that the average weight of man being 142 lbs., the proportion of weight he can draw to the weight of his body is only as 87 to 100. With the horse the proportion is not more than 67 to 100; a horse, therefore, can draw but little more than half his weight, and a man cannot draw the weight of his own body. (Of course, much more can be done by the use of mechanical means, such as wheels, &c.) This is a very poor result, if compared with the strength of the common cockchafer, which possesses a power of traction equal to more than fourteen times its own weight.

To test the power of traction in insects, M. Plateau attached them to a weight by means of a thread fastened to one of their feet, with the following results:—"Carabus auratus (a ground beetle), can draw 7 times the weight of its body; *Nebria brevicollis* (a much smaller insect), 25 times; *Necrophorus vespillo* (a burying beetle), 15 times; *Trichus fasciatus*, 41 times; and *Oryctes nasicornis* (a large European beetle), 4 times only. The bee can draw twenty times the weight of its body, and *Donacia nymphaea*, another small beetle, 42 times. From this it follows that if the horse possessed the same strength

as this last insect, or if the insect were the size of the horse, they would either of them be able to draw 155,250 lbs." M. Plateau has also ascertained the pushing power in insects by introducing them into a paste-board tube, the interior of which was made rough, and in which was fixed a glass plate, which allowed the light to penetrate into the prison. The animal, if excited, struggled with all its strength against the transparent plate, which on being pushed forward turned a lever, adapted to a miniature dynamometer, which indicated the amount of effort exerted. The results proved that the pushing power, like that of drawing, is greater in inverse proportion to the size and weight of the animal. "In *Oryctes nasicornis*, mentioned above, the proportion of the pushing power to the weight of the insect is only three to two; in *Geotrupes stercorarius* (a dung-beetle) it is sixteen to two; and in *Onthophagus* (a smaller dung-beetle) seventy-nine to six." In lifting, it was found that insects could raise a weight equal to that of their bodies, the common house fly being especially powerful in this way.

This marvellous degree of strength is obviously most necessary to the well-being of its possessors, when it is considered what obstacles they have to encounter to satisfy their wants, to seek their food, and to defend themselves against their numerous foes.

Number of Species of Insects.

Oswald Herr estimates that the insects comprise four-fifths of the whole animal kingdom. While there are about 55,000 species of animals known, excluding the insects, the number of this last single class amounts to upwards of 190,000 known species, according to Gerstaecker's estimate. He reckons that there are at least 25,000 species of *Hymenoptera* (bees, wasps, &c.), from 22,000 to 24,000 *Lepidoptera* (butterflies and moths), about 24,000 *Diptera* (two-winged flies) and 90,000 *Coleoptera* (beetles). The number of the other sub-orders cannot be easily estimated. Besides these there are about 4,600 *Arachnida* (spiders, &c.), and 800 *Myriapods* (thousand-legged worms, &c.).

When it is borne in mind that the individual members of many species may be found in millions upon a single plant, while the varied species teem in earth and air and water, the vast importance and influence upon our welfare of these little creatures may be readily imagined, though by no means easily estimated. It must at once be admitted, also, that the work of a zealous entomologist is anything but a sinecure.

ANTS' NESTS IN GARDENS.—A correspondent informs us that by burying a few sliced onions in ants' nests he has caused them to abandon their quarters. We learn from an experienced horticulturist, that two or three tablespoonsful of kerosene poured into the holes in their nests will produce the same effect.—*American Entomologist*.

Correspondence.

Township Societies.

To the Editor

Sir,—I have perused your remarks on Agricultural Societies in your issue of the 1st instant, and fully concur in the statement that they too often fail in the matter of selecting good judges. There is no doubt in my mind but that the benefit which might be derived from Agricultural Exhibitions may be altogether neutralized by the incompetency of judges. If these Societies cannot get good judges, they had far better postpone their exhibitions until they can obtain them. I also concur in your opinion as to the absurdity of giving prizes for half a dozen vegetables which can be picked up by any one who will take the trouble to bring them to the Exhibition.

With regard, however, to your plan for the Township Societies to leave the prize-giving for stock entirely to the County Society, I beg to differ, for the following reasons --

1. Counties extend, say, from 30 to 50 miles in length, and the funds of a Township Society at one extremity of the county might be awarded to male animals owned in a Township at the other extremity, and consequently such animals would be of no service to the former Township; whereas a Township Society giving its funds to male animals kept within its limits, obtains the benefit of them.

2. Exhibitions of stock in townships excite rivalry which would not otherwise exist, and they induce many farmers to become exhibitors who would never think of exhibiting at, or even attending a County Show.

I should prefer, therefore, to see Township Societies offer valuable prizes for male animals kept for public service, instead of the plan you suggest.

I hope that this correspondence may induce others to offer their opinions on the subject.

J. T. NOTTLE.

Winbrook, Jan. 8, 1869.

Good Words.

We transcribe from the *Welland Tribune* the following cordial testimony to the value of the CANADA FARMER and its claims upon Canadian Agriculturists. The writer has not only a good word for the CANADA FARMER, but as a voluntary correspondent has contributed many "good words" to its columns, and we hope will continue to do so. He writes to the editor of the *Tribune* as follows:—

"As some of my neighbours are getting up clubs for American Agricultural papers, I will, with your consent, give my views on the subject. I took the *Genesee Farmer* years

ago, when there was no agricultural paper published in Canada; then there was one printed in Toronto, which I took while it was in existence. Next I took the *Rural New Yorker*, with which, and the other papers mentioned above, I was well pleased; but when the CANADA FARMER came into existence, I subscribed for it, for several reasons, viz:—1st. Because the money was left in our own country; 2nd. It is cheaper than any paper can be had from the United States; 3rd. It gives the manufacturing department of Canada, so that Canadian farmers can know where to obtain required machinery, without carrying their dimes out of the Dominion; 4th. It has been post free, and, as the law has changed, the publishers pay the postage out of their own pocket, and still send the paper post free at \$1 per annum; and will, for 1869, enlarge it from 16 to 10 pages, which will be issued monthly. Instead of sending money out of the Dominion, we ought to subscribe freely for the CANADA FARMER. It gives the market reports of our principal cities, and advertises the agricultural fairs, both in our own and other countries, and gives reliable information upon every desired object in the agricultural line.

This makes the fifth year that I have taken the CANADA FARMER, and I shall continue to take it were the price of subscription to be doubled, and then think the investment a good one.

PETER SHISLER.

The Canada Farmer.

TORONTO, CANADA, FEB. 15, 1869.

Acknowledgments.

We beg to return our warmest thanks to the publishers and editors of newspapers throughout the country for the kind welcome they have given to the new series of the CANADA FARMER. The favourable notices which the number for January has received from the cotemporary press are most encouraging, and will stimulate our efforts in the future to render this journal in all respects worthy of the hearty commendations it has elicited. No pains will be spared to maintain, and even to increase the attractions and usefulness of its pages to the Canadian agriculturist; and to aid our efforts in this direction we again solicit the co-operation of farmers themselves, whose correspondence, we hope, will largely contribute to the interest and value of our columns. To those who have already favoured us with their communications we offer our cordial thanks, and we trust that many more will be incited by their example to write for a paper which is devoted exclusively to their interests, and is especially designed to afford a medium of intercourse between the various members of the agricultural community throughout the Provinces.

Our grateful acknowledgments are also due to many friends who, in renewing their subscriptions, have taken occasion to express in very flattering terms their high estimation of the value of the CANADA FARMER, and earnest wishes for its continued success. Such evidences of appreciation and good will are most cheering, and will encourage us to carry on the work of another year with fresh energy and hopefulness.

Immigration.

The East of London Emigration Society, as our readers know, has for its object the relief of the great distress prevailing among the operatives, on account of the closing of the iron ship building yards, by removing as many as possible of those who are both able and willing to work to other parts of the United Kingdom, where their labour would be in demand; or by enabling them to emigrate to this country, to the advantage at once of the land they leave, and of that to which they go. From the last report of this Society, dated 19th Dec., 1868, we learn that during the past year 900 persons had, through its instrumentality, been enabled to emigrate; and that all accounts from those who had gone to Canada were very encouraging and satisfactory. It is proposed, as soon as the season opens, to go on with the scheme if possible on an enlarged scale. We wish those engaged in this enterprize all success in their work of benevolence, and can assure them that for emigrants of the right kind there were never in Canada better prospects of ready and remunerative work than at present. Railways are to be built, colonization roads to be laid out, and other public and private undertakings are sure to be entered upon in the course of the year, which will afford steady employment to those who prefer working for wages to going immediately upon land; while the more thorough working of the free grant system, and possibly the final and satisfactory settlement of the Northwest question, will give an impetus to all kinds of industry such as Canada has never yet known. Whether or not our authorities will be equal to the occasion and inaugurate a wise and prudent as well as liberal plan for the encouragement of immigration remains to be seen.

Notwithstanding all our past supineness an increasing number of immigrants are finding their way every year to Canada. In the face of discouragement they have come and are coming, and those who make a fair trial thank God that they

have done so. But how few, after all, these are compared with what they might have been, and with what we trust under more favourable circumstances they soon will be. During the past season 28,786 immigrants have passed through Toronto. All of these, 5,197 have remained in Canada, the rest passed on to the Western States. The most of those through passengers were Germans and Norwegians, who had determined on their course before leaving home. The number remaining in this country was 1032 more than last year, and 3,002 over what remained during 1866. There is no reason why a still more favourable account should not be given of 1869.

Illinois Industrial University.

Our neighbours in the United States have in many ways publicly recognized the claims of Agriculture as one of the highest national interests, and almost every State has now its Agricultural College or University, designed to give young men a thorough training, both in the science and art of the farmer's essential and noble calling. One of the most recent of these institutions is the Illinois Industrial University, of the building connected with which the accompanying engraving, taken from the *Western Rural*, is a representation. The edifice, though large and commodious, is remarkably plain, and no money seems to have been expended in ornamentation. Many will think that a little more

occupying three years, and will comprise practical instruction in all branches of agriculture and everything relating to and necessary for the successful management of the farm. Chemistry, Mineralogy, Entomology, and all those collateral branches necessary to make intelligent scientific as well as practical farmers, will receive due attention.

The University already has one shop; and students, during the past term, have been employed to some extent in practical mechanics. It is hoped that other buildings and facilities for practical instruction will soon be added, so that the students may be enabled to acquire some skill in the use of tools, in the construction of models, and in the management of motor powers.

"Practice in some form, and to some extent



In contrast with the do-nothing policy hitherto pursued in Canada in the matter of emigration, let us notice, among many other things, the following sentence taken from one of our exchanges from the other side:—

"The United States Land Office report for 1867 will be printed in foreign languages, for distribution on the continent of Europe: 3,000 copies will be printed in German, 1,000 in French, and 1,000 in Swedish, all of which will soon be completed. The report will be accompanied with a map of the United States and Territories."

No labour or expense is, among our neighbours, thought too great in order to attract capital and labour to their unoccupied lands. It is more than time we were waking up and profiting somewhat by their example.

architectural beauty would have been an improvement.

From the first annual report of the Trustees, the *Western Rural* gives the following particulars:—"The University owns over 1,000 acres of improved farming lands, equal to any in the State. Forty acres are set apart for garden nurseries, and specimen orchards. The remainder are to be used for experimental and stock farms, orchards, arboreta, etc. Through the liberality of manufacturers, the University is rapidly accumulating a collection of agricultural implements; the cabinets, and drawings of specimen fruits, etc., will be added as fast as practicable. The ornamental grounds around the building already contain a large variety of evergreens and flowering plants.

"The studies will be arranged in a course

is indispensable to a practical education. It is the divorcement of the theoretical and practical which renders so much of education mere "book learning." To guard against this fatal defect, the trustees have directed that the manual labour system shall be thoroughly tried, and all students who are not excused on account of physical inability are required to labour from one to three hours each day, except Saturday and Sunday. During the spring term the labour occupied two hours each day. During the autumn it will occupy less rather than more time.

"The labour is designed to be educational, and to exhibit the practical application of the theories taught by the text books and in the lecture room. Thus far it has been popular among the students, several attributing to it the preservation of their health,

through a long term of severe study. They accomplished, altogether, a large amount of valuable work, and were proud to point to the grounds, fenced, planted with trees, and ornamented by their own labour. It was found to facilitate, rather than hinder study, and afforded a much more valuable means of physical culture than any system of gymnastics."

During the first term there were in attendance one hundred and fifteen students. The fee for the term is only \$15 for students from Illinois, and \$20 for those from other States.

The liberality and enterprise of our neighbours in regard to these institutions, and the fostering care extended by the Government and nation to the interests of Agriculture, are worthy of all praise. How far these Agricultural Colleges will secure the ends for which they have been established, remains to be seen. Should experience prove them to be thoroughly beneficial in their working and results, we in Canada shall not be slow, it is hoped, to reap the benefit of their example, both as a stimulus and a guide to similar enterprise.

"Progress," the Watchword in Agriculture.

During the first existence of man, while he lived in that beautiful garden of Eden, where the fertile soil and genial climate appear to have combined to mature a continued succession of vegetable sustenance for his wants, agricultural operations were unknown.

That period of perfection was but transitory, for soon he was driven from the garden to till the earth from which he was made, and earn his living according to the primeval curse of disobedience.

At first, the whole energies of man were devoted exclusively to the raising of food sufficient for his daily sustenance. As mankind increased in number, the good effects resulting from the combination of labour became apparent, and thus as the supply of food accumulated beyond what was needed for immediate consumption, their ideas began to take a wider range, and new thoughts manifested themselves to man. As the increase of population went on new wants sprung up. Animals were domesticated, either as the companions of man, or as a means of assisting him to cultivate the soil, and provide clothing to cover his nakedness, or give a variety to his food. As the flocks and herds multiplied, one favourite spot would be found too small for the sustenance of the whole number, and so they would have to separate and spread over the land. These spots, when brought under cultivation, would show a greater fertility to produce cereals than that which had already been cropped, and observation would teach them the necessity of some sort of rotation in their crops, and the value of animal droppings as stimulant

to the growth of vegetation would be seen. In a naturally dry climate, like that of Palestine, irrigation of the soil would become one of the most important operations of the husbandman. Each successive generation of mankind would become wiser in the art of cultivating the soil. Mr. Sharon Turner observes: "Mankind seem to thrive and civilize in proportion as they multiply, and by a concurrent action, to multiply again in proportion as they civilize and prosper." But had not the progress of agriculture kept pace with an increasing population, so as to become the means of fostering trade, commerce, manufactures, &c., there would have been no advance made in thriftiness or civilization. Upon the importance of agriculture as an art we need not dwell, as without it no nation can exist in an enlightened state. An agricultural country has within itself the necessaries and comforts of civilized life. Unlike the arts of luxury, agriculture has never been subject to the caprices of fashion, or to retrograde revolutions; it is too important in its bearing upon the welfare of mankind to be made subject to sumptuary laws or meddling rulers, without striking the fate of the nation. The attention and care bestowed on domestic animals, as a part of the husbandman's duties, is mentioned by the earliest writers. Folds were provided for sheep and stalls for cattle at a very early period of the world's existence.

Manure does not seem to have been gathered and spread upon the soil till the days of the Greeks, the earlier nations employing the fallow and irrigation as their chief means of improving the fertility of the soil.

The Romans appear to have well understood the value of manure, as they were assiduous in collecting and storing the dung of animals in covered pits, so as to prevent the loss and escape of the ammoniacal salts; they were also aware of the benefit of mixing together earths of opposite qualities, and of sowing lupines and ploughing them in while green and growing. Lime was employed as a fertilizer in Gaul, and marl in Britain.

Drains, both open and covered, were first used by the Romans, and it was mainly through having reached so high a point in the art of cultivating the soil that they were able to employ and feed large armies of men, and become the conquerors of all the then known world. But it is only in these modern days, since the establishment of the art of printing, and the dissemination of knowledge by means of an efficient agricultural literature, that the art of cultivating the soil, so as to obtain the greatest possible produce at the smallest possible outlay of labour, has made begun to rapid strides towards perfection. Agricultural chemistry has done something towards the progress of knowledge in the art of husbandry, though much of the so-called knowledge propounded by chemists and college professors is yet but theory, requiring to be put to

the test of actual practice before its value can be known.

More has been done to advance a knowledge of agriculture by the noted observations of practical intelligent cultivators, through the columns of an agricultural paper; but, we should say, inventive mechanical genius has done the most; and so great has been the progress within the last few years in producing machines that cheapen production by a saving of labour, and a shortening of the time necessary to accomplish certain operations of husbandry, that we may reasonably expect that even the present generation will see the primeval curse removed, and agriculture as an art brought to such perfection that steam will become the motive power in place of muscle. When such a time comes, man will imagine that the end of perfection has been reached, though there doubtless remain other and simpler motive powers yet awaiting discovery. The greater our progress the greater our progressiveness.

The Drainage of Swamp Lands.

The drainage of the swamp lands of the Province is evidently very important. These lands, when thoroughly drained, will be of the most fertile character; second to none in Ontario. At the lowest calculation, there are a million of acres in this condition, and so situated that no individual enterprise could easily accomplish the desired result. If done at all, the work must, to a great extent, be done by the authority of Government, and under its superintendence and control. Large and expensive works must be undertaken, to the prosecution of which the hampering prejudices and short-sighted selfishness of individuals must not be allowed to interpose a barrier. At the same time it is manifest that these works, if prosecuted at all, as they ought to be, are so reproductive that it would neither be reasonable nor honest to saddle the expense on the general community. It would be absurd to make the rate-payers of any town or city bear such expense equally with those whose farms may be made two and three times more valuable. As we stated some months ago, we are convinced that drainage ought to be made, and in the first place the expense borne by Government; but that by some equitably devised plan, the money thus advanced should be returned to the public by those whose property has been made more valuable.

As our readers are aware, preliminary surveys have been going on for some time in the low, swampy region round Baptiste Creek, and also in that region in Bruce, known

as the "Greenock swamp." What has been done, as well as the conclusions so far arrived at, are embodied in two reports lately laid before the Minister of Public Works, and by him submitted to Parliament. The fuller report is that by Mr. Molesworth in reference to the lands in Kent and Essex. The other by Mr. Gilmour, merely speaks of a general examination of the Greenock swamp, and recommends a full survey. It does not, therefore, call for any remark, except to mention that it says about twenty thousand acres would be reclaimed by drainage there, of the most valuable kind of land. The document by Mr. Molesworth is much more minute in its statements, and calls for more lengthened notice.

The lands in question, situated in the townships of East and West Dover, Chatham, Raleigh, East and West Tilbury, Mersea and Romney, are so level that it is difficult to say in which direction the ground rises or falls. Adjacent to Lake St. Clair, and a few miles from the Thames, the land is almost on a level with the water's surface, and in those parts forming the open plains of four or five townships, the greater part does not rise more than twelve inches above the level. These plains cover an area of forty thousand acres, and are partly on the north, and partly on the south, of the Thames, from about four miles west of Chatham to the river's mouth, and then for about three miles along the borders of Lake St. Clair.

All the surface water of several townships has to pass through these plains, thus enhancing the importance of a thorough system of drainage for the whole district. The general impression is that the most efficient way, for effecting the object desired, would be by a cut to Lake Erie. Mr. Molesworth, with this view, examined all the levels in the proposed work, and came to an unfavourable conclusion in reference to it. He thinks such an undertaking would be very expensive, and entirely inefficient. But he submits another plan which, he thinks, would thoroughly drain the whole. In explaining this, he divides the lands into two classes, distinguished respectively as "high level" and "low level;" the former comprehending all that have a natural fall to the receiving waters; and the latter where the level is so low that artificial means must be resorted to in order to discharge the surplus rainfall.

Proceeding still further to classify, he makes five districts; the first three of which comprehend the "High Level," and the other two the "Low Level." With-

out giving details, we may notice each of those districts in a sentence or two.

No. 1 is composed of parts of East and West Tilbury and Romney, and covers an area of 30,000 acres. There is abundance of fall for leading main drains to Lake St. Clair. The main drain will have an inclination of 24 inches in the mile, and in freshets will carry off 79 millions of gallons every 24 hours. The estimated cost is \$20,233 for drying these 30,000 acres. In 18,000 of these the estimated increase of value to the land effected by this would be \$3 per acre; in 12,000, \$1 per acre. In other words, for the outlay of \$20,000 the land would be increased in value by \$66,000, to say nothing of better health and comfort.

No. 2 comprises lands in West Tilbury, Mersea, and Romney, to the extent of 12,000 acres. The main drain in this would lead into Lake Erie, and would discharge, in freshets, 39 millions of gallons per diem. The estimated cost is \$9,425. For that, 8,700 acres would be benefited to the extent of \$3 per acre; and the rest of the 12,000, about 50 cents each, or upwards of \$27,000 in all.

No. 3 comprises 6,000 acres, and lies so high above the Thames as to be drained into that river in the ordinary way.

By the proposed works, which are estimated to cost a little more than \$12,000, 4,000 acres would have an enhanced value of \$5 each, and 2,000 of \$1 each—or \$22,000 in all.

In this "high level" division, then, we have 48,000 acres thoroughly drained, or at least so drained that municipal or individual effort could easily accomplish all the rest for an outlay of \$41,839 60, and that so as to raise the value of these lands to the extent of \$115,750, a clear and immediate profit of \$73,910 40, besides the increased facilities for individual effort in the same direction.

No. 4 covers 22,000 acres in Raleigh, East Tilbury and West Tilbury. The soil for over two feet in depth is a rich black vegetable loam, which, if drained, would be exceedingly rich and fertile.

The rainfall of 100,000 acres passes through this or at least over it, and this rainfall would need to be cut off in the first place. Mr. M. enters into details to show how this and the rest of the drainage is to be done. Drains, embankments, flood-gates and pumping works would all be required.

The works would cost by estimate \$102,054, and the annual cost for working the pumping machinery, &c., \$2,000.

For this, it is calculated, that 16,000 acres, now nearly valueless, would be-

come valuable farming lands, fit for the plough without any other outlay but fencing. Their value would be increased about \$10 per acre, while the other 6,000 acres of the district would be increased in value about a dollar each or \$166,000 in all.

No. 5 embraces also an area of 22,000 acres, in East and West Dover. The plan of drainage is similar to that recommended for No. 4. It is estimated that 16,000 acres are, at present, worth almost nothing. If the drainage were carried out, they would bring \$10 per acre. Of the remainder, 2,000 would be increased in value \$5 per acre, and the other 4,000 \$2 per acre. The pumping works would not involve a yearly outlay of more than 16 cents per acre. The estimated cost would be \$97,936, and the increase of value to the lands \$178,000.

Let us look at all this in one table:—

	Cost of Works.	Increase of value.	Acres.
No. 1	\$20,233 20	\$66,000	30,000
No. 2	9,425 90	27,000	12,000
No. 3	12,000 00	22,000	6,000
No. 4	102,054 00	166,000	22,000
No. 5	97,936 00	178,000	22,000
	\$241,669 10	\$459,000	92,000

Nearly 100 per cent for the outlay, saying nothing of the amount of fever, ague, rheumatism, and what not, banished from the district. The lands are very fertile, but, on account of their being so wet, only half crops are raised, even on those under cultivation.

Two things are very evident. First, that it is for the interest of the country that such improvements should be made. They would increase the wealth and resources of the whole greatly. While they would afford a large amount of work, and attract emigrants to the country by the assurance of immediate and remunerative employment. But, secondly—It is most evident that it would be an absurd and unjustifiable expenditure of public funds to make such improvements in any other way than by making the land improved bear the expense. The land owners in Kent and Essex could well afford to pay for all, and be great gainers in the bargain. Such works would be of the best kind, for they would be re-productive and would yield a continued fund for reclaiming, by degrees, all the waste land in the Province. The same system as that pursued a few years ago in Britain, with regard to Government loans for draining and trenching lands, might be easily adopted. There a fixed per centage per annum was laid as a burden upon lands improved, and at the end of twenty-

two years it sufficed to extinguish principal and interest. The percentage fixed in Britain, was perhaps lower than it ought to be made here, being only six per cent. per annum, spread over twenty-two years, thus extinguishing principal and interest for 132 per cent. Millions of pounds sterling were thus borrowed, and are being repaid every year with great ease and without a grumble. The details, as far as Ontario is concerned, could easily be settled. In this matter of swamp lands, then, the Minister of Public Works has a great opportunity of distinguishing himself by inaugurating a system of reproductive undertakings, which would add amazingly to the health and wealth of the country—and, instead of costing the public purse anything, would actually yield a revenue while affording present employment to hundreds.

The Climate of the Muskoka Settlement.

We have had numerous enquiries addressed to us within the past year respecting the capabilities of the Muskoka district, recently opened up for settlement under the Free Grant policy of the Ontario Government. It is asked whether there are sufficient quantities of arable land to meet the wants of a large influx of population, and also whether the climate is so severe as has been described by those who point to the Western States as the emigrant's earthly paradise. To the first of these enquiries we have uniformly replied that a very large amount of good land, well timbered and watered, awaits the settler, although the whole country is crossed by rocky ridges where the primitive formation crops out, and which are of course unavailable for agriculture. We feel assured that though there may not be such large tracts of rich farm land as are found in the vicinity of Toronto and to the westward, yet that individual farms will be found in large numbers which will compare very favorably with the farms in these fertile districts.

Our purpose at this time, however, is not so much with the first inquiry as with the second, and as we happen to have some information of a reliable nature before us, we purpose giving it as briefly as possible.

The Muskoka settlement is situated about ninety miles north of Toronto, and about thirty east of the Georgian Bay, in the immediate vicinity of three beautiful lakes, Muskoka, Roseau, and Joseph. The settlement lies on the 45° parallel, which to the westward passes through the northern part of Michigan, the middle of Wisconsin, and the southern portion of Minnesota, and to the east passes out of Canada in the neighbourhood of Cornwall, so that the whole of Quebec, New Brunswick, Prince Edward Island,

and Newfoundland, together with the greater portion of Maine and Nova Scotia, lie to the north of it. The city of Montreal is thirty-five miles further north than Bracebridge, the political and judicial capital of the district, and the French settlement at Riviere du Loup is over two hundred miles directly north of the same point. Observing this fact, and noting at the same time that the isothermal lines passing through Canada bend away to the north as they pass westward, we can laugh at those alarmists who would condemn the whole northern portion of Ontario to a more than Siberian cold. About two years ago a number of gentlemen of this city, who were in the habit of spending their vacation in the back country, made arrangements for a regular series of meteorological reports in this section of country. The observations were such as could be taken without at any time interfering with the regular employments of bush life, and by the aid of very inferior instruments, yet from the regularity with which they have been taken, a certain amount of value must be attached to them. The spot whence they were taken is situated on the southern shore of Lake Muskoka, exposed to the biting northwest winds of winter, and cooled by breezes from the lake in summer. At the foot of the lake there lies a small land-locked bay, about 3 miles long and 1½ wide. It is so situated as to make it almost impossible for ice to drift out of it, and so cut up by islands that in no one portion has the wind an opportunity of exerting any great force upon it. It forms, therefore, an excellent means of judging how long ice will resist the modification in the temperature apart from any extraneous influences. In 1867 the ice took on the 4th of December, and in 1868 on December 1st. In the same years the ice broke up on April 27th and April 16th. If then we assume for the time that the average period of freezing up in Muskoka Bay is December 2nd, and of opening April 22nd, we have an opportunity of comparing it with such harbours as Kingston, Montreal, and Quebec, the records of which are the only ones at hand. The average time of closing and opening for five years is as follows:

	CLOSING.	OPENING.
Kingston, Jan. 4th.		April 7th.
Montreal, Dec. 11th.		April 17th.
Quebec, Dec. 9th.		April 22nd.

Comparing these, we find this small bay is only closed seven days before Quebec and nine before Montreal, two harbours whose powerful currents and tidal influences combat the action of the frost, and one month before Kingston harbour, which receives the full force of the heavy seas running the whole length of Lake Ontario, while, as if showing that the ice, when formed, was of not so durable a nature, it opened only fifteen days after Kingston, five days after Montreal, and at the same time as at Quebec. Judging

from these facts, we are inclined to believe that the lake itself remains open as long as any land-locked bay on the north shore of Lake Ontario.

In 1867 the coldest day was January 30th, 20° below zero; and in 1868 February 3rd, 21° below. The following table shows the mean results of the months of 1867-8, the observations being taken twice a day during the year:

	1867.		1868.	
	6 a.m.	Noon.	6 a.m.	Noon.
January ..	11	23.3	13.4	27.3
February ..	22	31.3	31.2	26.3
March ..	25	37	22.2	43.3
April ..	32.3	51	28.2	54
May ..	41.5	60.1	45	59
June ..	61.4	78.3	55.2	75.5
July ..	62.4	82.1	48.5	91
August ..	62	81	58.2	74.5
Septemb'r ..	43	71.1	50.3	65.1
October ..	38.3	62.1	34.3	49.1
Novemb'r ..	29.4	41.2	27.1	40.3
Decemb'r ..	14	28.5

A glance at this will clearly show that if American climatologists are correct in their statements that the limit for the cultivation of Indian corn is a mean temperature for July of 67°, this grain, the most delicate of our cereals, should not be a stranger to the Muskoka district; and indeed we can readily testify to having procured from the Indians of that section as fine green corn as we have ever seen in Canada. And if corn, why not wheat, barley and oats, which flourish full three degrees further north? Within a few yards of where these observations were taken the writer has seen citrons ripen, as they had ripened in succession for a number of years, while the beautiful flowers which adorn our gardens, and the fruits and vegetables peculiar to our country, flourish beside them. And if nature has given this region a climate slightly colder than the southwestern portion of Ontario, it is compensated by a steady and moderate covering of snow during the whole winter, so that when the cold blasts of March are spent, the husbandman's labours commence at once. Among other memoranda we notice that butterflies were first seen last year on April 19th, gulls on the 11th, ducks on the 11th, and the first wild flowers on the 19th. How much earlier are we in Toronto?

As evidence that British refinement, as well as industry and enterprise, have penetrated this region, a friend was agreeably surprised not long since by hearing the sounds of a piano from an isolated dwelling, which to him was only accessible by a canoe. It was a matter of wonder how the instrument had been conveyed to its destination.

Dutch Farming.

Recent travellers have remarked the wonderful patience and perseverance shown by the Dutch in bringing to a high state of cultivation a tract of country which, by nature scarcely habitable, has now become the very garden of Europe, and a rich and powerful kingdom supporting a larger population to the acre than any other on the globe.

From its position called Low or Netherland, Hollowland, or Holland, it was a vast morass or swamp, at times inundated by the sea, and through which rivers ran with beds elevated above the surrounding soil.

The greater part of it is below the level of the sea, which is now kept out by dikes built along the shore at an enormous expenditure of labour.

An English poet thus describes Holland :

"To the stake a struggling country bound,
Where barking waves still bait the forced ground,
Yet still his claim the injured ocean lays,
And oft at leap-frog o'er the steeples plays."

The soil is alluvial, formed by the recession of the sea, and the deposits of sand and mud brought down by the rivers. In many places the surface is made still lower by the removal of layers of peat, the only fuel found in the country, and beneath which the soil is well adapted to tillage when kept free from water.

No other country presents such an appearance to the traveller, who passes over roads on the top of high raised embankments, and sees fields and dwellings twelve to twenty feet below the level of the running streams, and farms divided not by fences, but by canals, and hay and grain borne by boats from the fields to the barns and granaries.

The great feature of the country is the numerous windmills which are constantly at work pumping water from the ditches into the canals. One traveller says he counted over two hundred in sight from one spot. These canals are not dug in the soil, but are formed on embankments raised high above it. These embankments are raised to the height of thirty feet, and made so wide as to afford both a road and canal at their summit, with sides sloping so gradually that men or loaded vehicles can easily ascend to the top. At the base they are usually 130 feet wide. They are under the constant supervision of a vigilant corps of skilled engineers and inspectors, giving the people a sense of security as they follow their pursuits of life. The climate is more changeable and severe than even ours in Canada. The air is pervaded by dampness and is often heavy with fogs. In winter the waters are frozen, even to the bays along the sea-coast, and the temperature sometimes goes down to 23 below zero. In summer, cold nights succeed hot days, and the changes from heat to cold and from cold to heat are often very sudden and severe.

Yet the people, from their frugal and industrious habits, are remarkably healthy, and show an amount of intelligence and skill in their agricultural operations that may well excite the admiration of the world. The farms are usually small, the largest rarely exceeding 100 acres. Nothing that can be made use of as manure is suffered to go to waste. Green crops are often ploughed in. Liquid manures collected in reservoirs are pumped up and distributed over the fields. Peat ashes are carefully saved and sown on the grass crops. The roads, and the streets of the towns and cities, are carefully swept, and the sweepings carried to the farms to add to the manure heap. There were about 6,000,000 acres under cultivation in 1861, of which more than half was in grass, while the population amounted to 3,700,000. The grass is of the finest quality, and large numbers of lean cattle are annually imported from Norway, Denmark, and other countries, and fattened into beef for the English market. Great numbers of cows and poultry are kept, and great quantities of milk, butter, and eggs are daily sent by steamer, consigned to the London market. The Dutch dairies are remarkable for their neatness and cleanliness, and are all built on the same plan. The farmer, when he enters them, leaves his shoes at the door.

They are of one story, built of brick, and of great length, the dwelling of the farmer and his cattle being all under one roof. The stalls for the cows run along one side of the building; the other side forms the dairy, while the central portion forms the family dwelling. The floor of the cow stable is of brick, and is scoured daily, and kept as clean as possible, and the dairy room with its floor of marble or tile is the very perfection of cleanliness. The loft over the building is filled with hay, the floor being made tight so that no seeds or dust can escape through. A recent English traveller remarks of the Dutch: "Go into any kitchen, no matter in what dwelling, and there you will see a pure white marble floor, not a particle of dust or dirt visible, and the kitchen utensils polished to the brightness of mirrors. Go into the streets of the cities and you will see the servant girls scrubbing the pavement, and slashing water over the doors and windows."

The average yield of a farm in North Brabant is given as follows in the *British Farmer's Magazine* for 1862:—Wheat, per acre, 31 bushels; rye 35; barley 51; oats 65; beans 42; peas 28; mangel wurtzel 21 tons. Hay is not given; but these are not the only crops, as flax, hemp, madder, chicory and tobacco are also grown. Nearly three-fourths of all the horned cattle are milch cows. An admirable system of common schools exists, and nearly every child of suitable age attends school. Early embracing the truths of the Reformation, the people have not only maintained a constant struggle against the difficulties of nature they had to overcome in

order to obtain land to live by, but their struggles in the cause of civil and religious liberty against the most gigantic despotism of the age have been well described by the master pen of one of America's most gifted historians. The untiring industry of the inhabitants, with the excellent instruction of the schools and clergy, have co-operated to render the country the freest from crime of any in Europe.

Editorial Notes.

We often wonder how it is that the majority of farmers have so few books in their houses, and what they have are too generally trash purchased from some travelling book-peddler. It would be, perhaps, too much to expect that many of the old fogies of the present generation would take it into their heads to learn anything from books. But if they will not try to benefit themselves they ought at least to allow their children to do so, and have the chance to read, think, and observe concerning what is going on in a calling likely to become their own, and thus, when they are grown up, to be able to help their hands with their heads to more advantage than their fathers have done. Some one has recently said that if every farmer was to sell an acre off his farm and devote the proceeds to purchasing a small library of agricultural books, he would make considerably more money each year than he now does. We have no doubt of this, but think if the proceeds of the crop of one acre were devoted to that purpose, and that acre was thoroughly well manured and cultivated by the boys, the proceeds would buy as many agricultural books as would suffice till their interest was awakened, and they would then not rest satisfied till they got more, and the library would increase with the productiveness of the soil under more enlightened management. There is one difficulty in the way, however, and that is, how and where to obtain books of the right sort; for we must confess that there is not only a considerable number of worthless books on subjects connected with agriculture, but that the most worthless ones are those that are likely to be passed off by the bookseller if the choice is left to him; for, as a general rule, the more worthless the book, the greater the profit there is made on its sale. In a former issue we gave the names of a few suitable books, and some of these days we will endeavour to give a fuller and more complete list of the books most useful and valuable to form a farmer's library. Get good books to begin with, and the taste for reading will grow.

The amount of advertising patronage given to the American agricultural papers is very noticeable, and there can be no doubt it pays, and pays well too. What a contrast in this respect do they present to the pages of our own agricultural journals, where a dozen or so of small notices make up all the

show of enterprise our implement manufacturers and stock breeders can muster. If they knew the value of advertising in the WEEKLY GLOBE and the CANADA FARMER, which reach several thousands of readers who are just those always on the look-out for improved stock and machinery, they would soon make fortunes. We are continually asked and written to as to where such or such an implement can be had—a question not always easy to answer. Such things as trap dicks, scarifiers, ploughs, cultivators, chains, grain-drills, horse-rakes, &c., are in constant demand, and we believe that many of our most enterprising farmers send to the States for them at great expense, simply because they are unable to find out who makes them here. Our implement makers must wake up a little if they want to prosper, and acquire a Continental rather than a mere local reputation.

Among all our agricultural exchanges, there is none which we read so thoroughly, with both pleasure and profit, as the *Country Gentleman*, of Albany, N. Y. It deservedly stands at the head of the agricultural press of America, if not of the world, in the sound, practical, common-sense way it treats of all matters pertaining to the culture of the soil, the breeding of stock, &c.

Would it not be a good idea for a number of farmers in a locality to form themselves into a *Seed Club* for the purpose of purchasing and testing new varieties of grain, roots, vegetables, &c.?

Let each pay a certain amount into a common fund, and choose one of their number to procure and plant a sufficient quantity of the desired article, and distribute the product after harvest among the members of the club, they allowing him sufficient to remunerate him for the land used and the necessary labour done. In this way enough seed could be obtained to make a fair test of the variety at much less cost and trouble than if each individual grew only a very small patch, liable to be neglected, or get intermixed with other plants of the same species. In the same way they might club together to procure a choice male animal, to be used as a stock-getter in improving the kind of stock they find most advantageous to raise. Each could keep the animal a certain proportion of the time, or pay his share of keeping it, while all had an equal right of use. The expense could be easily borne by many, while to one alone it would prove too heavy a burden. United action will often succeed where individual effort would fail.

Ten or twenty farmers clubbing together can afford to buy and keep a \$500 Short-horn or Jersey bull, to improve upon their native stock, where one alone could not aspire beyond a \$50 or \$100 animal that would scarcely be good enough to excite any interest towards improvement among the neighbours.

Farmers do not seem to know that unleached wood ashes are of far greater value to use, mixed with plaster in the proportion of a third or fourth, and sown on grass or clover, than the paltry return they get by giving them away to the soap men who scour the country to get them, in exchange for a few cents per bushel or a few pounds of poor soap. Save all the ashes for one winter, and try them on the grass crops. You will not sell them after that.

Canadian Dairymen's Convention.

In the Dairy Department of this issue will be found a report of the annual meeting of the Dairymen's Association, the proceedings of which were highly interesting and the attendance large. The leading feature of the Convention was Mr. Willard's address, which we regret we cannot give in full; but we trust that arrangements may be made for its publication, along with other papers and transactions of the Association. It is much to be regretted that the want of funds has prevented the publication of the proceedings of the last annual meeting. The importance of the dairy interest, and the good work in which the Association is engaged, deserve a liberal support. Without this public sympathy and aid from the agricultural community, these Conventions, useful as they are, in giving opportunity for the discussion of important questions, will not accomplish any great or lasting results. We cannot but think that advantage would be derived from at least an occasional change in the place of meeting, and that holding it next year, as proposed, either in Toronto or Belleville, would extend the usefulness of the Association, and add to the number of its members, and consequently to its funds. Full time should also be allowed for the discussions, and arrangements made for some leading speaker to open the different topics in the programme. For want of this preparation, important questions will be allowed to drop without eliciting any expression of opinion or any practical information. We offer these hints in the most cordial spirit of good will, and heartily wish the Association a prosperous and useful career.

Notes on the Weather.

We have had unusually mild weather during the month of January. It is generally noticeable that when December has a temperature below the average, accompanied by dryness, the two succeeding months always show a temperature above the average. This seldom occurs more than once in ten years, January being usually the coldest month of the year.

We do not remember such a mild open mid-winter as the present has hitherto been in Canada. During the past month, there have been 18 clear days, 13 cloudy days, and 5 days on which snow or rain fell. The prevailing winds have been from the south-west

and west. The lowest temperature on the 22nd, the coldest day, was 4°, the highest 49°, on the 4th. There have been ten days on which the temperature during the day did not reach below 32°. The country is bare of snow (Feb. 1), except along the fences and in the woods, where the snow left by the storm of the 1st, which was heavy, and drifted deep, with a north-east wind, has not melted. For about a week after the 1st there was tolerable sleighing, but since then the succession of thaws and drying winds, with sunshine, have made the roads smooth and capital for wheeling. The grass is growing in sheltered spots, and the fall wheat looks well, so far as we can judge, though if the weather continues as at present it must suffer from the cold dry winds, and alternate thawing and freezing going on.

Notices.

THE AMERICAN ENTOMOLOGIST.—The *American Entomologist* for January, comes to us in its usually neat and beautifully illustrated style, and contains interesting articles on the following subjects:—The Apple Root Plant Louse; The Parasites of the Human Animal; A Measly Wild Duck; Strawberry Worms; The Strawberry False Worm; Fungoid Growths; Plums for the Million; The Colorado Grasshopper; The Nine Pronged Wheel Bug; Grasshoppers in the State of New York; Universal Remedies; Answers to Correspondents. R. P. Studley & Co., Publishers, St. Louis. \$1 per annum in advance.

THE HORTICULTURIST for January, appears in a new dress, and filled with interesting and valuable articles by some of the ablest and most thoroughly practical horticultural writers of the United States.

The article by Mr. Williams, the accomplished editor, giving instructions upon the art of *sending fruit to market*, is well worth the year's subscription to any one engaged in raising fruit for the market. It embraces among its regular contributors such names as Downing, Fuller, Thomas, Elliott, &c., names well known to every horticultural reader, and long regarded as high authorities.

It is published monthly by F. W. Woodward, 37 Park Row, New York City, and mailed to subscribers at \$2.50 per annum in advance.

NEW DOMINION MONTHLY.—We have just received the February number of this periodical. It is embellished with a portrait of Mr. Brydges, and contains a number of original articles from various pens. The two serial tales, "Early Scenes from Canadian Life," and "The Crucible," are continued. There are also several short stories and sketches, and three or four brief poems, some of them showing very fair ability. There is an interesting account of the French fisheries of St. Pierre, and a review of the "Cruise of the *Galatea*," which is well worth reading. The article on "Colours and Complexions,"

also merits attention, and we must not forget a piece of music entitled "Supplication," by the Rev. M. S. Baldwin. We heartily wish the *New Dominion Monthly* success, and have much pleasure in commending it to the notice of our readers.

THE MANUFACTURER AND BUILDER. We have received the first numbers of this new monthly periodical, and we can hardly speak too highly of their merit. Though chiefly designed, as the name implies, for the mechanic, and the architect or builder, there is much in their contents of interest to the farmer, and to all, indeed, who wish to be able to help themselves and not to be altogether dependent on artisans, in a hundred exigencies of daily life in which a little mechanical knowledge and skill may be turned to useful account. The scope of the work is something like that of the *Schulze American*, but the topics considered are more varied, and, in some respects, more homely. Each number contains thirty-two large quarto pages. The typography is excellent, and the articles are illustrated with admirable engravings, executed in the first style of art. We cordially commend this publication to the notice of our readers. The publishers are Western & Co., 37 Park Row, New York. The price is \$1 50, American currency.

VICK'S ILLUSTRATED CATALOGUE AND FLORAL GUIDE FOR 1869.—This beautiful annual comes to us this year with increased beauty and enhanced attractions. There is a very handsome coloured frontispiece, representing a bouquet of choice flowers, and on every page most finely executed engravings of rare flowers and choicest vegetables. But it is not in the illustrations, beautiful and truthful as they are, that its chief merit consists. It is most to be prized for the very clear, concise and accurate descriptions given of all the flowers that may be used in adorning our gardens, and of the excellent vegetables and melons that supply the table, with suitable hints for their successful culture. Besides, as a yearly record of the progress being made in the floral and vegetable departments of Horticulture, it is worth much more than the nominal sum of *two cents* which is charged for it. We believe Mr. Vick spares neither labour nor expense to obtain the best seeds from the most reliable sources, and that his customers are honourably and honestly served with the best the market affords.

OFFICERS OF AGRICULTURAL SOCIETIES.—We have published in the WEEKLY GLOBE the lists of officers of the county and township Agricultural Societies, as the reports have come to hand, but it would occupy one fourth of a single issue of the CANADA FARMER to give these lists in the same form. We therefore propose to wait till the official returns to the Bureau of Agriculture are complete, and then publish, as we have done heretofore, a full and correct list of the societies and principal officers, including Presidents, Treasurers and Secretaries.

Horticulture.

EDITOR—D. W. BEADLE,
CORRESPONDING MEMBER OF THE ROYAL HORTICULTURAL SOCIETY, ENGLAND.

Cultivation of the Raspberry.

NO. 1.

The increasing attention that is being paid to the production of what is termed "*small fruits*," calls for more full information concerning their cultivation, and the varieties that will yield the best results. And these small fruits are well worthy of increased attention, forming as they do a large part of our summer fruits, and affording a most grateful and wholesome variety to our tables. Horticultural skill has wrought great changes in the size and beauty of these fruits within the few years past, besides adding largely to the number of varieties, so that now cultivators are more embarrassed by the riches than any poverty in the number of climates for a place in their collection. Among these small fruits the Raspberry holds a prominent position, and it is the purpose of this article to lay before our readers the present state of knowledge on the subject of their culture.

It was formerly supposed that a sandy soil was the only soil suitable for the cultivation of the Raspberry, and such statements may be found among the older authorities, and even more modern writers who depend upon those who have gone before them for all the ideas contained in their writings. But the improvements that have been made in the system of tillage, have demonstrated that what was formerly regarded as a defect in the quality of the soil was in reality to be attributed solely to its condition. It has been found that a shallow soil can often be made productive by deep cultivation; and the tile drain, by removing the excess of water, has rendered most fertile and valuable, soils that had long been considered quite unsuitable for horticultural purposes. By judicious underdraining and deep tillage, our clayey soils are found to be not only suitable for many purposes for which they were formerly considered wholly unfit, but the very best soil—producing the strongest and most healthy and most productive plants.

Such has been the result of the experiments made in the culture of the Raspberry. It was ascertained that this plant produced the best results in a deep, moist and very rich soil, and that wherever these conditions could be obtained, there was no difficulty arising from the character of the soil. It will at once be seen that these conditions can never exist where the drainage is not perfect, or where the rock lies just beneath the surface. There are places where the soil is naturally underdrained, of good depth and great fertility, but these are favoured spots, and most cultivators will find it ne-

cessary to use some means to supply one or more of these requisites. But wherever the soil can be thoroughly drained, deeply tilled and plentifully enriched, there the Raspberry can be well and successfully grown by the soil usually known as sandy or clay, or gravelly. Yet it will probably be found more easy to keep a thoroughly underdrained clay loam in the requisite tillage and fertility, and that consequently the cultivation of this fruit is ordinarily carried on with the least possible expense in such a soil. If any one should be so unfortunate as to be confined to a soil in which the water stands at a depth of from eighteen inches to two feet from the surface, which cannot be removed by tile drains, let him not undertake to grow the Raspberry, for if there be any one thing more injurious to it than another, it is stagnant water about the roots. It will not grow under such circumstances. Bearing these things in mind, it will be easy to select a spot of ground that will be suitable for Raspberries. Having made the selection, the ground should be covered with a liberal dressing of manure, and this ploughed under at as great a depth as possible, ranning the plough down to the beam, and if the subsoiler can be run in the bottom of the furrow, following right behind the plough, so much the better. In this way the soil is loosened up and enriched to a good depth. After ploughing, the harrow should be run over the ground until it is thoroughly pulverized, when it will be ready for planting.

The ground may now be laid out in rows at six feet apart, and the plants set singly, two feet apart in the row. This will prove more convenient than planting three or four plants in a hill or stool at greater distances in the row. There is more room in which to run the cultivator, and greater ease in passing between the rows in gathering the fruit or clearing the ground, or applying manure. In a short time the row will become a continuous hedge, which will require to be kept within its proper bounds by cutting up any young plants that may make their appearance beyond the prescribed limits.

The planting can be most expeditiously done by two persons, the first operator placing the plants on the ground with the top pointing in the direction in which he is going; the other follows, and with a hoe draws a little earth over the plant, and placing the toe of his boot upon it gently, yet firmly, presses it into the soil in such a way that the top will be raised from its previous horizontal position, and approach an upright position. The cavity caused by the pressure of the foot should now be filled with earth, and the workman pass on to repeat the operation on each succeeding plant.

The plants should be prepared for planting by cutting off the cane or top to within a couple of inches of the root. What is wanted is not a growth of shoots and leaves from

the top, for that will all die and dry up in autumn, but a growth of new shoots from the root, which will survive the winter and may show a little fruit the next summer. All the growth that takes place from the top during the season in which the plant is set out, only tends to exhaust the root and enfeeble it, if not wholly destroy the young root sprout that is to form the cane for the next summer. If no such root sprout comes up and continues through the summer after planting, though the top may bear leaves and shoots, and even fruit, in the autumn

Strelitzia Regina.

The accompanying illustration of the Strelitzia was taken by our artist from a very handsome plant in the possession of Hon. D. L. Macpherson, and the following description has been furnished by Mr. Vair, who has charge of Mr. Macpherson's beautiful conservatory and gardens :-

The common name of this plant is the Queen Plant or Parrot Plant. The name carries with it a peculiar interest, having been given in honour of Charlotte, Queen of George III., of the house of Mecklenburg

Fahrenheit. The plant, of which the engraving is only a part, has been in bloom for a week past (now Feb. 2), and will continue to bloom, it is expected, for the next six or eight weeks, having thrown up about twelve flower stalks, each flower stalk producing five and six different florets, which escape in succession out of the spathe or sheath in which they are contained, resembling in appearance the beak of a bird. The upright florets are of a bright orange colour, somewhat stiff and rigid, while the lower, or stamen, is of a deep indigo blue, its shape resembling in many respects the tongue of a turkey. The



the whole plant will die. The canes of the Raspberry that come up this season, will bear fruit next season and die in the autumn; and if from any cause no new canes come up from the roots during the summer, there will be nothing left to continue the plant another year, and it wholly fails. For this reason it is best to cut away the top when planting, while at the same time it makes the plant more manageable in setting out.

At the Colorado Fair, four cabbages weighed an average of forty-five pounds each, a dozen turnips and fifty potatoes made each a barrel, and there were squashes 5½ feet in circumference.—*Horticulturalist*.

Strelitz. The plant belongs to the natural order *Musacea*, Linn.

Although known to botanists for a period of more than eighty years, it is still highly prized on account of its great beauty, and the peculiarity of its flowers and foliage. There are several varieties of this plant in cultivation. The subject of the illustration is considered the most beautiful, and ought to be in every collection.

The plants are all natives of the Cape of Good Hope. They are perennial, of easy cultivation on in good fibrous loam and peat. They are propagated by division of the roots, and also by seeds. Although considered stove plants, the Regina thrives well in a green-house at a temperature of 50° to 55°

leaves are navicular or boat-shaped, tapering slightly towards the end, from ten to twelve inches in length, and five to ten inches in width, of a dark green colour, glaucous and resisting, with a footstalk two feet six inches to three feet in height, while the flower-stalks are something stronger and taller, standing boldly above the leaves, and about the thickness of a small walking cane. By placing the plants out of doors in summer, for about two months, in a sheltered place, and well exposed to the influence of the sun, they will be almost sure to flower, and amply repay the cultivator for the trouble. They are gross feeding plants, and require plenty of pot room and a liberal supply of water while growing, and good drainage.

Alocasia Metallica.

The annexed cut represents the *Alocasia Metallica*, a plant allied to the *Caladiums*, all of which are of rare beauty in respect to their foliage, and many of them really magnificent. This illustration, as well as the foregoing, was taken from Hon. D. L. Macpherson's collection, and the description is furnished by Mr. Vair. The *Alocasia* is a native of Borneo, and has been in cultivation only for a few years. There are now several varieties, but none, in our opinion, can rival the *Metallica*. It was imported from England at considerable expense, by that enterprising nurseryman and florist, Robert Buist, of Philadelphia, and the Hon. D. L. Macpherson was the purchaser of one out of two plants that came alive. The specimen, which has thriven admirably, has afforded the owner a great amount of interest and pleasure. Of all foliage plants in his collection, there is none more peculiar in the colouring of the leaf, which is a rich greenish bronze on the upper surface, the reverse being a dark chestnut, and much resembling the colour of that seed when fully ripe. The stalk is attached to the leaf in a peculiar manner, somewhat near the centre, giving the whole plant rather a unique appearance. The lustre of the young expanding leaf has to be seen to be appreciated. When fully expanded they are about ten to twelve inches in length, and seven to eight inches in breadth, somewhat inclined to turn up at the edge as they get old. They require a strong heat and moist atmosphere, and a liberal supply of water when growing. Great care ought to be taken that the soil is free and open. They are found to succeed best in rough peat and loam, with the addition of small nodules of charcoal, and also some finely-chopped sphagnum. It is necessary to secure perfect drainage. The season of growth is spring and fall.

"Grape notes from the Parsonage"

W. H. W., of Reading, Massachusetts, sends to the *Gardener's Monthly* some very interesting statements under the above heading: and as the climate there is very similar to that of Western Ontario, we place them before our readers:—

"DELAWARE.—I put this first, because in my experience it stands at the head of the entire list. The secret of success with it seems to be high culture. No other vine in my grounds has borne this year so abundantly as the Delaware, and very many of the clusters and berries were as large as ordinary

Dianas. In the spring of 1867, I applied to one vine a wheelbarrow load of hen manure, spreading it six or eight feet from the stem, and this vine presented this year one of the most splendid displays of fruit that ever gladdened a gardener's eyes. If I could have but one variety of grape, it would certainly be the Delaware."

NOTE BY THE EDITOR.—It is true that the Delaware requires and will well repay generous treatment, but all extremes are errors, and over-feeding of this, as of every variety, is sure to result in disease. A wheelbarrow load of hen manure, undiluted, is more than can be applied with safety at one time. It is better to use less and proceed cautiously. The Diana grape, on the other hand, will not bear high feeding, but yields the best results in a comparatively poor soil.

DIANA.—Strong growth, entirely healthy, but not so fruitful this year as usual. This is probably the result of mildew last year, but

I shall certainly plant more myself. It is, as Mr. Rogers says, the best of his hybrids.

IONA.—I have been disappointed in the opposite direction with this variety. Last year I spoke very favourably and hopefully of it; but this year truth requires me to give a different report. It has proved much later than I hoped. Standing on the south side of my house, on a bank three feet high and ten feet wide, it was not nearly ripe October 17th. Diana and Union Village, on the same trellis, were both in advance of it, the former fully ripe. In quality it is all that could be desired, and it has the same peculiarity as the Diana, of being very eatable long before maturity. Indeed, the most palatable grape I could find on the first of September was an occasional Iona. I most fervently hope that it may yet prove a much earlier grape than my experience this year would lead me to expect. If so, it will prove invaluable. Healthy and productive on good strong soil; but it needs high culture, like the Delaware.

ISRAELLA.—This is the first season that I have been able to make the *Israella* grow with any vigour. My vines have not yet borne: but a friend gave me a few fine bunches, from which I obtained an entirely new impression of the quality of the grape. It has a peculiar twang which to me is decidedly offensive. If this is its uniform characteristic, one vine of *Israella* will be quite as much, if not more, than I shall want. But Rogers' 15 has taught me patience and hopefulness in regard to any grape so highly praised by good judges as the *Israella*.

ARNOLD'S HYBRIDS.—These new candidates for public favour have all shown entire healthiness and vigorous growth. *Cornucopia* is the only one of my new vines that has yet shown fruit. This bore two small bunches; but the birds, for some unaccountable reason, helped themselves to nearly every berry, while *Delawares* at their side were untouched. But Mr. Arnold sent me specimens of all five varieties from Canada; they were all fully ripe September 20th. I was more pleased with their quality than last year. They have no perceptible pulp, and are very spirited and juicy. Several amateurs, to whom a few grapes of each variety were given, were unanimous and emphatic in commendation of their quality. Rev. H. W. Beecher says of them, "If I could have but one variety I should take 'Brant' (I should say, take 'Canada') but with the express understanding that No. 5 (*Autuchon*) should go with it." From my present knowledge, I consider them some of the most promising grapes now before the public.



what fruit it has borne has ripened with remarkable uniformity and deliciousness. It is very nearly, if not quite as good, to my taste, as the Delaware.

ROGERS' HYBRID, No. 15.—There is no other variety in my collection that has so improved upon acquaintance as this. When it first fruited I thought seriously of digging it up and throwing it away, and in my last year's report I said "how Mr. Rogers can consider this the best of his hybrids (except Salem) I am at a loss to understand." But I understand it now. It has this year seemed almost like a new grape. My family and very many of my friends have pronounced: the best grape in my garden. It is a very strong grower, and is an abundant bearer of fine large clusters and berries. I found perhaps half a dozen rotten berries upon the vine, but with this exception it has shown not the slightest indication of disease. I advise all my friends to plant Rogers' 15 as

FRONDA.—This is a new seedling, probably from the Chasselas. The vine needs winter protection, like Allen's Hybrid. It is a white grape of very fine quality, superior to Rebecca, and some good judges have said superior to Delaware. The berries are about the same size as Allen's Hybrid, but the bunches are from six to eight inches in length. The leaf is exceedingly beautiful, plainly showing vinifera blood, but it has never been seriously affected with mildew, during the five or six years I have grown it. It ripened about with the Delaware, and is a most abundant bearer. It requires good soil and generous culture, and will then most richly repay the owner's care.

GREEN OF SABBATH.—This is another aspirant for the crown. I have never seen the fruit, but an experienced amateur in Connecticut, who is familiar with all our best varieties, tells me that in colour and flavour it is almost identical with the Delaware, while in healthiness and vigour of vine, and size of bunch and berry, it is much more like the Concord. My vine, set this spring, has grown very vigorously, and appeared in all respects as well as any one could desire. If the fruit is indeed as large and fine as my friend considers it (and he has seen and tasted it, and is thoroughly competent to judge) then we shall have found a treasure indeed.

EUAMELAN.—This is Dr. Grant's new *protege*. The vine was set last spring, and has made a very strong and entirely healthy growth. The wood is very short jointed, and has a decidedly foreign appearance. The fruit, sent me by Dr. Grant, is very delicate, and high-flavoured, reminding one very strongly of one or two of Arnold's Hybrids. If the Euamelan shall ripen as early as is represented, it will prove a very valuable addition to our list of hardy grapes.

NOTE.—The Iona did not ripen at St. Catharines this year as early as the Delaware, and from trial thus far it is believed it never will, but it was fully ripe by the 28th of September. The Israella did not ripen any earlier than the Delaware, but it was of larger size, black colour, and very good flavour.

Ed.

Orchard Culture for the Million.—Or, How to Renovate Old Orchards.

To the Editor.

SIR.—For fifteen years I have been using extraordinary means to grow apples. When I first took possession of my present orchard and farm, I was told the trees were of good quality, but had never borne any fruit, except now and then a few apples, which decided their quality. Acting on this information, and also on that derived from further investigation as to former treatment, I at once determined to proceed with quite a new course of management. I found that the orchard had, according to the best received opinions, been regularly cultivated

and cropped, occasionally with grain, but most frequently with vegetables, potatoes, corn, &c., &c. The plough had been freely used, and the land tolerably well manured, but the result in apples and growth of trees was most unsatisfactory. I sat down, as I usually do when a fresh course of action is to be struck out, and thought about it. By the way, I recommend this course to any one of my brother farmers who is doubtful what to do. Just go to some quiet shady place, if it is summer, and if not there will be plenty of time to find some opportunity when he can get quietly away in some comfortable corner, and "think"—turn the matter over in his mind, and look all sides of the question fairly in the face, first one and then another. The habit of doing this is the first great step to amendment. You will not thus be troubled, as an old friend of mine once said, with "after-wit"—a very troublesome and dangerous kind of wit. I will, however, suppose that the person needing thought did or does as I did, go away by himself and reason the matter out. The conclusion I arrived at was that trees, considered as trees alone, irrespective of kind or quality, generally attain the greatest size and most thrifty growth in the woods, and in the woods they get shade, moisture, constant manure by mulch of leaves, and above all, are certainly let alone. The plough or spade never offends their delicate roots, and moisture in the hottest season is abundant; and on examining "turn-ups" in the woods, I find that very few roots go down into the cold subsoil; on the contrary, they run into a perfect network all over the ground, just under the surface, often not more than deep plough gauge, and rarely, if ever, deeper than a foot, and then only in ground that has a good dry subsoil, and, in fact, something for the roots to find when they go there. There certainly, as a rule, is little or no nourishment in an ordinary subsoil, and mine was no exception to that rule. If I dug a hole for a post, two feet deep, I generally found water more or less, even in summer, after a wet time, and in the spring and fall always in plenty; and I suppose in undrained land, except on the side of a hill, where there are no springs, water more or less, at two feet deep, is generally to be found, at all events, after rainy weather. I then reasoned that to force the roots, in self-preservation, to escape the destruction caused by the plough going lengthwise and across, into the subsoil for subsistence, was manifestly unwise; and on opening the ground carefully, I found all the roots of every size near to the wet cold subsoil, just under plough gauge; but still the surface soil was permeated with small fibrous roots, struggling upwards for life into a more genial position. These were the growth since the last ploughing, at that time about two years previous. This decided me, and I determined to allow the instinct of the roots, so to speak, to take their own course. To

assist this, and as much as possible to follow the usual growth of trees in their natural state in the woods, I allowed the long grass to remain undisturbed by animals or the scythe, and used plaster plentifully on the land to promote its growth. When haying time came, there was at least one and a half tons an acre of heavy grass, all of which was allowed to fall down and decay where it grew, and in addition, a sprinkling of manure was used, to the extent of about 20 loads to the acre. Next year the effect was quite apparent. The quantity of wet grass acted as a mulch to keep off the summer drought, and the following winter, when frost had frozen the ground, the same accumulation of sodden grass, then closely pressed down by the weight of snow, prevented the frost from leaving the ground too early, thereby retarding the blooming until spring had certainly and surely set in. This was a great matter, as more fruit is lost by frost destroying the bloom than by barren trees. I also manured the surface near the trees every spring. After a year or two the growth of wood was wonderful. The trees threw out new wood in all directions. The growth at the ends of the branches, hitherto so short, stunted and bushy, was now long and thrifty, and any quantity of young sprouts were thrown out from the large branches. These were carefully pruned away with a sharp chisel and mallet, and all but those intended to regenerate the tree were closely and smoothly cut off, with one blow of the mallet, close to the bark. For pruning, I always use a very thin, carefully ground carpenter's two-inch chisel, and prefer it to anything else. All that is required is for it to be ground very thin, with a long acute bevel, and as sharp as a razor. One smart blow will sever a tough one inch in diameter, with a clean smooth cut. I have tried every season of the year to do this in, and always prefer June for pruning, an operation of which I shall speak in a future number. At present we must not lose sight of our trees, and the result of the management above described. The trees grew until the branches swept the ground like weeping ashes, and were loaded with fruit (with some rare exceptions) generally every year. The trees I experimented on were two winter Sweet-houghs, one summer Sweet-hough, one Hawthornden and three winter apples, the names of which I never knew. The apples were very large, many of them weighing nearly three-quarters of a pound, and hundreds half a pound. I omitted one Belleflower, a useless woolly apple, unfit for keeping and worthless to eat—fit only to allow children their full desire to feast on, as when ripe it never disagreed with them. There is a great deal more in this remark than most people think. Many kinds of apples are sure to disagree with delicate stomachs. The Russet apple almost always does, the Snow-apple more rarely, but the soft Belleflower never, in my experience, especially

when peeled, which most children are likely to do, on account of its size. No child like to peel away half a small apple; it seems like waste, but a good big one is quite another thing; there is plenty left afterwards. But I am wandering away from the trees again. The yield from these trees was generally about twenty-five barrels each year, when the season caused them all to bear, and in other seasons, not so prolific, about fifteen barrels, and they have continued to bear until within three years past. It is now four years since they passed out of my possession, and the present owner has allowed the orchard to return almost to its previous state. For the history of the pruning appearance, renewal and regeneration of those trees, I must refer my readers to a future article, in which I will relate the remedy applied to a friend's trees, which, being the same as that applied to mine, will save repetition.

C.

Rare Fruits and Flowers.

REA'S SEEDLING QUINCE was originated by Joseph Rea, Green county, N. Y. It is a splendid fruit, averaging considerably larger than the apple or orange quince. The quality is good, and the tree a strong grower, with large, dark foliage. In planting for market we would choose this and the orange or apple shaped variety.—*Rural New Yorker*.

GOLDEN CHAMPION GRAPE—It is not only a decided novelty, but a novelty of the very highest excellence—free and robust in growth, hardy and prolific in habit, magnificent both in berry and in cluster, and exquisite in flavour. The bunch is moderately large, compactly shouldered and somewhat tapered, with a stout fleshy stalk. The berries are very large, with stout, warted foot-stalks, some two inches long and three and a half inches in circumference; and they are generally of an ovate shape, but occasionally somewhat roundish, and they have a thin, pale yellowish green skin, which acquires a rich golden amber tinge with a slight bloom when they are fully ripe. The flesh is tolerably firm, but tender, with few seeds, very rich and juicy, with a flavour which compared with that of the Black Hamburgh is, to our taste, much more saccharine and luscious than that variety, even when grown on the same stock. It has received a first class certificate from the Fruit Committee at South Kensington. The foliage is very slightly lobed and deeply and sharply serrated.—*Florist and Pomologist*.

MRS. PINCE'S BLACK MUSCAT GRAPE, will, I think, prove worthy of all that has been advanced in its favour. Its properties may be enumerated as follows; the finest and strongest growing vine in cultivation; very free setter, bunches medium size, berries, medium, colour black with a thin blue bloom; flavour rich muscat; flesh firm, skin rather thick; the berries on very short stout

footstalks. The last properties would indicate it to be one of the best late keeping grapes known. J. J. Tyerman, Botanic Garden, Liverpool, in *Gardener's Chronicle*.

It grows luxuriantly and fruits most abundantly. In point of quality nothing can be finer. It is not quite so rich as the muscat, but it is fresh, juicy and crackling, with sufficient of the muscat flavour to make it really delicious. The berries are produced upon strong foot-stalks, and there cannot be a doubt it will prove a first-class keeping grape, which for flavour will put aside Lady Downes, the Alicante and St. Peters.—*Nottinghamshire Guardian*.

GESNERIA EXONIENSIS, deserves better attention than has hitherto been bestowed upon it, for it is one of the most noble plants of the race to which it belongs, and one of the best winter flowering plants in cultivation. The figure published as an advertisement, conveys but a poor idea either of the superb velvety leaves or brilliant clusters of scarlet flowers by which, when well grown, this plant is distinguished. We strongly recommend this plant to cultivators in need of first class winter flowers.—*Gardener's Weekly*.

PASSIFLORA MENROI—A hybrid between *P. alata*, female, and *P. cœrulea*, male. This will be a valuable greenhouse climber, the foliage resembling that of the male parent (*cœrulea*), while the flowers are intermediate in character between those of both parents. The whitish or blueish tint of the male parent and the reddish colour of the female become here amalgamated into a lovely pale blueish violet. The threads of the corona, too, have, while preserving the peculiar barred markings of the female plant, lost their coarse texture, and assumed more of the delicate fringe-like appearance and rich colour of the corresponding parts in *P. cœrulea*. The fragrance is that of *P. alata*. It is altogether a very elegant and charming addition to a group already not destitute of attractions.—*Gardener's Chronicle*.

THE GEM OF THE PRAIRIES is a new climbing rose raised by Mr. Adolphus Burgess, of East New York, and is the product of cross fertilization between that long-known beautiful climber, the Queen of the Prairies, and the H. P. Rose, Madame Laffay. It combines the climbing qualities of the Prairie Rose with the fragrance and richness of colour of the Hybrid Perpetual. It is said to produce large flowers, perfectly double, borne on trusses, having from ten to twenty heads on each truss.

QUEEN VICTORIA, a new colour, the brightest in colour of the whole collection of seedlings raised by Mr. Bause, by crossing some of his yellow-leaved seedlings with the Blumei. The leaves are of a most beautiful rich bronzy crimson, with a bead-like edging of decided greenish yellow. The *Florist and Pomologist* for January contains a coloured engraving of this beautiful new foliage plant. This plant was sold by Mr. Bause for about \$25.

FEUCUSIA "TRY ME O," says S. H., in the *Gardener's Magazine*, has proved to be one of the neatest, most profuse in flowering, most sparkling and perfect of all the smaller kinds in cultivation. The growth is short, compact and sturdy, the flowers small but perfect in form, the sepals rolling back most elegantly, and delightfully bright in colour.

Grass Lawns.

The well-kept grass lawns of British gardens are the envy and admiration of foreigners, for in no other country is the climate so favourable for the production and maintenance of that fine healthy greenness of sward by which they are characterized at all periods of the year; but without continued well directed care and management, even the best surfaces, whether of lawns or playgrounds, will rapidly deteriorate, notwithstanding that they may have at first been laid with the finest of turf, or sown down with the best-selected assortment of grass-seeds. Frequent and regular cutting is also essential for the perfect keeping of short grass, for unless this be attended to throughout the growing season, and till late in autumn, the stronger kinds have not only a tendency to overgrow and choke the weaker, but also to destroy their own lower leaves and young shoots, whereby the sward is rendered not only open and patchy, but more favourable for the growth of unsightly grass-eradicateing weeds.

In laying or sowing down fine grass, it is usually deemed sufficient to clean the ground thoroughly of root weeds, and to secure the surface from unequal settlement, by regular digging or trenching, combined with repeated levelling, tramping and rolling. But much more is usually needed, for most soils contain seeds of troublesome weeds, and that often in such abundance as to defeat or counteract any care which may have been bestowed either in turling or sowing, and more especially in the latter, where the seedsmen who may have supplied the seeds are not unfrequently blamed for sending foul, instead of properly assorted seed mixtures, when the actual blame rests entirely with the sower, in not having previously put the soil through a cleansing process, so as to ensure first the vegetating of seed and then the destruction of the seedling weeds; but although such cleansing may have been carefully attended to, it will save much future labour if the young grass is frequently gone over just after brairding, for the purpose of picking out any young weeds—more especially perennial ones—as they appear, choosing if possible for that process showery weather, or when the soil is sufficiently moist to allow of the young weeds being easily drawn out.

Broad-leaved weeds, such as dandelions, plaintains, docks, &c., are easily seen, and should be grubbed out as early in the season as they can be observed, but strong, coarse-growing, unsightly turf-marring grass

weeds, are less easily distinguished, although their extirpation is not less desirable. A little experience, however, combined with careful observation of their appearances and habits of growth, will soon lead to their detection; and as this can be most easily effected before the first mowing is performed in spring, then is the time for most successfully combating them with the small spud or weeding knife, either of which is sufficient for eradicating them, as none of their roots are what is termed deeply penetrating.

A by no means inconsiderable advantage in dealing with grass lawn weeds before the first spring cutting is the getting over of any unsightly appearance imparted thereby to the sward, before the time when grassy surfaces become sufficiently dry for being enjoyable, and the stirred soil has also time to reconsolidate before the setting in of drying winds, which not only allows the finer grasses to grow and spread, but also facilitates the vegetating of any seeds sprinkled upon the earthy parts from whence the weeds have been removed.—*The Farmer* (Scottish).

Lilium Auratum.

Those who have seen this superb new Lily, will need no description, and to those who have not seen it, words would convey but a very inadequate idea of its surpassing beauty and loveliness. There is every reason to believe that it will prove to be perfectly hardy in this climate, and that as soon as the bulbs have been sufficiently multiplied so as to bring the price within the reach of all, they will be seen adorning the gardens of Canada with their beauty, and filling them with their fragrance. At present, however, owing to their rarity, they are cultivated only in pots. Mr. Cross, gardener to Lady Ashburton, Melchet Court, near Romsey, has one bulb, which in the spring of 1861 was about the size of an English walnut and produced one bloom; in 1865 it produced seven blooms, in 1866 thirty-one blooms, in 1867 one hundred and four blooms, and in 1868 *one hundred and fifty-one blooms*. His mode of cultivation is to shift the bulb into a larger pot filled with a mixture of equal parts of rough peat and loam with a little sand, taking care to have perfect drainage. His loam is laid up with alternate layers of dung, and sliced off for use in such a way that one quarter of the bulk is well decayed stable dung. After the bulb is planted, it is placed on the stage of a cold vinery and watered once or twice. When the lily has made a growth of two or three inches, it is removed to an orchard house where it has plenty of light and air. If the spring frosts are sharp, an old mat is thrown over it and it is kept dry. On some mild morning it gets a *good soaking*, and then it is allowed to become quite dry. The watering is then repeated, and repeated oftener as the pot becomes filled with roots. The Lily remains in the orchard house until in bloom, when it is taken to the conservatory, and as

soon as its flowers fade, returned to the orchard house, and is watered with weak liquid manure so long as the leaves and stems remain green. When those are quite dead, the stems are cut off and the pot placed in a cold vinery just out of the way of frost, where no water is given it. In the next spring it is again shifted into a larger pot; the sharp edges of the top of the ball of soil only are rubbed off. The bulb is never forced to rest or to grow, never stored away in a hot dry loft nor wrapped in paper and put into a drawer. Mr. Cross considers the careful treatment after blooming as most important.

The Creveling Grape.

It was stated before the Cincinnati Horticultural Society, by Mr. E. A. Thompson, that by planting the Creveling in alternate rows with the Hartford Prolific and Concord varieties, the bunches become fully fertilized, and as compact as can be desired. The Creveling is an early and hardy black grape, ripening with the Delaware, of very agreeable flavour and fine appearance when well grown, but the berries do not always set well, so that the bunches are often very loose and straggling. Grape growers will do well to make a note of the above statement and give it a trial, for if compact bunches can be secured, the Creveling will be one of our very valuable early grapes. The Laura Beverly, introduced by the Rev. Alex. Dixon, of Port Dalhousie, county of Lincoln, so very closely resembles the Creveling, that good judges of grapes are disposed to believe them to be identical. It is of the same colour, time of ripening, size of fruit, and subject to the same fault of forming straggling and imperfect bunches. Those who have it would do well to plant the Concord near it, and see whether that will have the effect of rendering the bunches compact.

A Challenge From Nova Scotia.

To the Editor.

SIR.—I have just seen a letter which appeared in the *DAILY GLOBE* in December, signed J. C. Kilborn, in which the writer states that it was he that exhibited the Ontario collection of apples which competed for the Inter-Provincial prize of \$100 and a gold medal at the late exhibition at Halifax. That prize was offered by the Fruit Growers' Association of Nova Scotia, for the best collection of apples grown in any Province of the Dominion; and Mr. Kilborn appears not very well pleased because he did not get the prizes—says the Nova Scotian apples sent him from the Exhibition room "were a very inferior lot of fruit—most of them miserable samples—if grown in Canada, would have been considered unfit for market." &c. &c.

Now, Sir, I do not belong to the Fruit Growers' Association, and I did not see any of the fruit at the late Exhibition in Halifax;

but I have an orchard here in Nova Scotia; and I have been in Ontario and have seen the orchards there, and the fruit they produce; and although the season is past for many varieties of apples, I have still on hand, of my own raising, several sorts which are common to Nova Scotia and Ontario; and if Mr. J. C. Kilborn, or any one else, wants to make a comparison, I will give him an opportunity, and, in order thereto, I hereby

CHALLENGE

any Fruit Grower within the Dominion to compete with me, at any convenient place within this Province, that may be agreed on, for a prize of \$25 per barrel of each of the following varieties of apples, viz:—

Northern Spy,
French Russet,
Baldwin,
Ribston Pippin,
Gravenstein,
Clyde Beauty,
Rhode Island Greening,
King of Tompkins County.

The competition to be upon the above eight varieties, and under such terms and conditions as may be mutually agreed on; each competitor to furnish satisfactory proof that the eight barrels of competing apples were grown by himself, within the Dominion, and on land owned by himself for at least one year previous to the competition.

The acceptance of this challenge, and the competition consequent thereon, will give a fair opportunity for comparison; and my giving the challenge will show that as a Nova Scotian Fruit Grower I do not fear for the result.

JUDSON D. HARRIS.

Clifton Nursery,
Cornwallis, N. S., Jan. 12, 1869.

A Wonderful Apple Tree.

A few days since I paid a visit to the original Loudon Pippin apple tree, and if there is in the next, or any other land, a tree that is known to have borne more apples of high quality than this, I would be glad to hear of it.

The tree, two years ago, was as sound as could be imagined. It was about forty-five feet high and forty-five feet in the spread of its branches. It is known to have borne every year, for the past eighty years, from forty-five to seventy-five bushels of apples each year, and it was known eighty years ago to have been an old tree. So it has, without a doubt, borne for one hundred years an average of fifty bushels per year. The fruit is first-rate quality, and over the average size of apples.

We have had a fine apple crop this year, but they have ripened earlier than usual, as our fall was warm. We have spring-like weather now, though two weeks ago the mercury was at zero, with first rate sleighing. All kinds of fruit did well last season, except, perhaps, the last of the cherry and the first of the peach crop. Grain of all kinds did well also.—*Cor. in Prairie Farmer.*

Grape Growing.

To the Editor.

SIR.—Volume One of the CANADA FARMER contained some interesting articles on Grape Culture, over the signature "W. S., Woburn," in which was recommended the "single stem, dwarf and renewal system." Can you, or W. S., or any of your readers, give any information as to whether experience since then has justified the high opinion then held by W. S. as to this mode of culture?

I purpose planting a number of Delawares this spring, and would gladly adopt the single stem system, if the experience of to-day justifies the opinions of W. S. in 1861. I also purpose setting out 190 hardy vines, with the view of grafting on them, at the proper time, cuttings from some new and valued kinds, which are now held at high prices. I have in view the Isabella, Clinton and Concord. Which would you recommend, and how long should they be in the ground before they are grafted upon?

YORK.

Toronto, Jan. 6, 1869.

Will W. S., Woburn, please to favour our correspondent by communicating the results of his experience since 1861?

Probably the most hardy and best vine to plant as a stock upon which to graft the new and more rare sorts is the Clinton. The practice with many is to graft at the same time that the stock is planted. The scion will not make as vigorous growth the first season as when the stock has become established before being grafted. "York" can try both methods, grafting some as planted and some the next season, and thereby ascertain with which he has, on the whole, the best success.

WHITE WILLOW.—A correspondent from Toronto writes:—"Would you kindly state what has been the result of trials of the white willow in Canada, up to the present time, as a wind break, and as cut down to a live fence or stockade?"

Will someone who has tried the white willow, or seen it tried in Canada, give the desired information?

HORTICULTURAL EXHIBITION.—At a meeting of the Directors of the City Electoral Division Society, recently, it was resolved to hold a spring show on Thursday, the 20th of May, and a summer show about the 22nd of July; it was also decided to hold a rose and strawberry show, and strawberry and cream festival, on or about the 5th of July. A union will be attempted with some of the surrounding riding and Township societies, for the holding of a fall exhibition. The Directors are about to canvas for membership subscriptions for this year, and should be generously supported in this effort to promote our Horticultural interests.

Agricultural Intelligence.

Toronto Electoral Division Society.

The annual meeting of the Toronto Electoral Division Society was held on Saturday, January 18. From the report we give the following extract, which will be interesting, especially to fruit growers:—

"Your directors beg to draw attention to the great advance made in fruit culture, within the past few years, in this section of the country. Until a very recent period, this city was principally supplied with fruit from the United States; and large quantities of apples, pears, grapes, strawberries, &c., &c., were annually imported. This climate has been found so favourable to the production of the above fruits, that the market is now supplied with our own productions; and large sums of money, that used formerly to be sent out of the country, now go to remunerate our own cultivators. For the past two years, large quantities of apples have been shipped from this port for the Montreal Market, and the demand is steadily increasing; and as the superiority of the fruit shipped becomes better known, the demand will continue to increase. Orchardists must, however, exercise care, and grow the best varieties, and have them carefully gathered and packed. The farmers are now—owing to the information diffused through the country by this and kindred societies—beginning to cultivate the best varieties; and those that are disposed to plant, could not do better than visit our fall exhibition, and take note of the kinds usually the most successful in obtaining prizes. Pears are now being extensively cultivated all over the country; and from the splendid specimens produced at our exhibitions, it is evident that our market will ere long be as well supplied with this fruit as it now is with apples. The cultivation of the European grape, under glass, has made great progress in this city and vicinity; and Toronto is now one of the best supplied cities on this continent with hot-house grapes. Nearly all the best varieties can be grown in glass-houses, without fire heat; and the specimens shown at our exhibition during the two past years, would do credit to any country. Hardy grapes are also being extensively grown around Toronto, and with every prospect of success. The following varieties were ripe here on the 15th September, on vines two years planted, viz., *Delaware*, *Concord*, *Iona*, *Hartford Prolific*, *Rogers' Hybrids*, 4, 15, and 19, and a few others. One vine of the *Hartford Prolific* ripened about 10 lbs. of good sized grapes. Good wine made from open air grapes, is now becoming pretty plentiful; in fact, there is less difficulty in growing grapes than there is in growing currants, and the former will shortly be more plentiful here than the latter. Strawberries, for the past

three or four years, have only been imported from the United States in the early part of the season. The general supply is produced here.

"Raspberries are being cultivated in large quantities, and bid fair to become a profitable market crop. They were rather a failure last season, owing to the excessive heat and drought. The favourite varieties are *Franconia*, *Fastoff*, and *Brinckle's Orange*."

The Treasurer's financial statement showed a balance in hand of \$115 65.

Mr. James Fleming was appointed a delegate to the Provincial Exhibition to be held at London this year.

It was resolved that the Society be affiliated with the Fruit Growers' Association of Ontario, and it was decided that the meetings of the Society should be held on the last Friday of each month.

Wentworth Agricultural Societies.

A special meeting of the Agricultural Societies of North and South Wentworth was held at Mrs. Cook's hotel, Hamilton, Jan. 25th. From the report of the Turnip Match Committee, it appears that they visited the farms of over twenty competitors, awarding the prizes as follows, viz:—

For four acres of Turnips—1st prize, Peter Grant, Barton; 2nd prize, John W. Betzner, West Flamboro'; 3rd prize, William Thompson, Beverley.

One acre of Turnips—1st prize, John Sutton, East Flamboro'; 2nd prize, James Church, West Flamboro'; 3rd prize, James Black, West Flamboro'.

Quarter acre Carrots—1st. Thomas Stock, East Flamboro'; 2nd. Nelson Howell, Auster.

Quarter acre Mangolds—1st. Peter Grant, Barton; 2nd. Edward Markle, East Flamboro'.

From the report of the judges, we learn that the soil on which all the crops were grown, was a sandy loam; on the four acre lots, the cultivation given by Mr. Grant was full ploughing, and manuring with twelve loads of barn-yard manure to the acre, cultivating, harrowing, rolling and reploughing in the spring; 360 lbs. of bone dust were applied to the acre. The yield was 822 bushels per acre—drills 26 inches apart.

Mr. Betzner's cultivation consisted in fall ploughing and manuring with twenty loads of barn-yard manure, to the acre, and ploughing twice in the spring—drills 28 inches apart; yield, 832 bushels per acre.

Mr. Thompson ploughed twice in the spring and applied 18 loads of barn-yard manure to the acre—yield 895 bushels. In all three fields the variety sown was Skirvings.

On the one acre lots, Mr. Sutton raised 812 bushels (Sharpe's improved). Mr. James Church, 753 bushels, and Mr. James Black 687 bushels to the acre.

Of carrots, Mr. Stock raised 879 bushels (white Belgian), and Mr. Howell, 863 bushels of the same variety to the acre.

Mr. Grant's yield of Mangolds (yellow Globe) was 1,433 bushels, and Mr. Markles, 1,211 bushels of long reds to the acre.

Board of Agriculture—The Treasurer's Council of the Agricultural Association Accounts.

At a meeting of the Board of Agriculture, held in the Agricultural Hall, on Thursday, January 28th, to consider the subject of the Treasurer's indebtedness, it was

Resolved—That in the case of the Treasurer's accounts with the Board, the following appears to be the state of indebtedness, so far as the present state of affairs presents:—

Amount due on 30th Nov., as per Mr. White's report.....	\$10,725 74
Amount due on Paris Exhibition account.....	1,622 02
Amount due on Provincial Visitors' Fund.....	300 06
	<hr/>
	\$13,047 76
Add note and interest and discounts.....	4,252 55
	<hr/>
	\$16,300 31

That Mr. Denison claims to have paid on said amount, since the 30th November, \$3,034, and also that he is entitled to a percentage on monies disbursed, amounting to \$5,138; these two sums, amounting to \$8,772, deducted from the sum of \$16,300 31, leaves \$7,528 16; the Board agrees to accept Mr. Denison's proposal to pay the latter amount in cash in three weeks from date of mortgage, meantime to give satisfactory security in a mortgage for \$800 at three months; the position of the item of \$5,138 not to be prejudiced in relation to either party by this arrangement as the Board does not admit the validity of said claim; provided that whatever sum the auditors find has been paid by Mr. Denison shall be endorsed upon the mortgage; provided further that this arrangement is upon the condition that the auditors find the statement to be correct

North Riding of Oxford Agricultural Society.

To the Editor.

SIR,—At the annual meeting of the North Riding of Oxford Agricultural Society, held in Woodstock, yesterday, the following resolutions were passed unanimously:

Moved by Mr. Cowan, seconded by Mr. Nesbit, and

Resolved,—That after hearing the explanations of the Hon. G. Alexander, in respect to his connection with the Board of Agriculture, this meeting express undiminished confidence in that gentleman, and hereby nominate him as a member of the Council of the Association.

Moved by Thos. Oliver, M.P., seconded by H. Parker, Mayor of Woodstock, and

Resolved,—That the thanks of the North Riding of Oxford Agricultural Society are due to the Hon. John Carling, for the steps taken by him in bringing to light the financial business matters of the Treasurer of the Provincial Agricultural Association, and venture to hope that the investigation may be continued until the whole matter is made satisfactory to the Province.

By giving space in your columns for the above resolutions, you will greatly oblige.

R. W. SAWTELL,
Secretary.

The elections for members of the new Council have resulted as follows:—

- No. 1—Mr. George Macdonell, Cornwall.
- " 2—Hon. James Skead, Ottawa.
- " 3—Sheriff Ferguson, Kingston, and Mr. Andrew Wilson, (a tie).
- " 4—Mr. Edwm Mallory, Napanee.
- " 5—Mr. John Walton.
- " 6—Mr. George Graham, Brampton.
- " 7—Mr. James Cowan, Waterloo.
- " 8—Mr. J. C. Rykert, St. Catharines.
- " 9—Mr. David Christie, Paris.
- " 10—Mr. Robert Gibbons, Goderich.
- " 11—Mr. Lionel C. Shipley, Falkirk.
- " 12—Mr. Stephen White, Charing Cross.

AGRICULTURAL BILL.—Certain changes have been made in the Agricultural Law, and as it now stands, the Bill provides that all funds of the Agricultural Association, except silver taken at the Annual Provincial Exhibition, shall be deposited in a chartered Bank—that a list of prizes shall be mailed to prize holders, on or before the first November—that prizes shall be applied for before or on the 30th November, or be forfeited—and that all liabilities of the Association shall be paid by the 31st December of each year. It also provides that votes of any society taken at the elections for the year 1869 be legal, although the voter may not have paid his subscription prior to 1st January, provided such subscription shall have been paid before the recording of votes.

OHIO STATE FAIR.—The Ohio State Board of Agriculture has appointed the next State Fair to be held at Toledo, on the 13th to the 17th days of September.

The cattle fair at Drayton, County of Wellington, on the 4th inst, was well attended. About 25 head changed hands at good prices, as much as \$30 having been given.

Elmira monthly cattle fair was well attended, but the farmers brought out fewer cattle than usual. Only about 45 head were to be seen on the grounds, but they were in good condition, and brought fair prices.

The Fergus monthly Cattle Fair was an excellent one. About 350 head, fit for killing, were brought to the ground, and the majority sold at an average of \$4 25 per 100 pounds on the hoof. As high as \$5 per 100 was paid for a few extra head, just as they stood.

SEED WHEAT FAIR.—The North Riding of Wellington Agricultural Society will hold a spring seed wheat fair at Harriston, on the 3rd of March. The Secretary, Mr. James Isles, will attend at Allen's Hotel, on the morning of the show, to receive entries. Parties who are not members will be charged \$1 as an entrance fee.

At the annual meeting of the South Wellington agricultural society, a resolution was passed throwing the County show open to the whole Province, and not, as at present, confining competition to the County; a resolution was also carried that the present rule applying to the ages of thorough-bred cattle be applied to all cattle.

The monthly cattle fair in Galt, was very well attended, and a better supply of cattle than was expected were on the ground. Among others, the *Reporter* noticed the herd of Mr. John Brown, consisting of 20 fine animals, 15 of which were sold at the rate of \$4 45; two oxen of Mr. W. S. Elliott, which were sold at \$4 62½; five; two steers of Mr. Isaac Bechtel, sold for \$60, two steers of Barton Bros; five head of Mr. Richard Common, sold \$117; a cow of James K. Stewart's, sold for \$27. M. Andrich, butcher, bought five head for \$138; Mr. Pickard, one for \$30; Mr. Puddy, two head; and Mr. Kemmels, two head. Some stock was bought for feeding, but the majority of poor stock was held at very high prices.

The Mount Forest monthly cattle fair was not so large as usual; but the *Errand* says this was attributable, perhaps, to the fact that a much better class of animals were offered—the attenuated species which has formed such a prominent feature at former fairs, being almost unrepresented. Among the sales were two cows by Mr. Alex. Wilson, Arthur, for \$65; two steers and a cow, by Mr. Joseph Tuck, Arthur, for \$108; a yoke of oxen \$120; two steers and three heifers by Mr. Haynes, also of Arthur, to Mr. G. W. Crossin of this village, for \$120. The average rates may be quoted as follows: Oxen, \$70 to \$90; steers, \$40 to \$45; cows, \$18 to \$22; heifers, \$12 to \$16.

The Ayr cattle fair, held this month, had a better attendance of buyers than at any previous fair. The *Herald* says the show of stock was fair in both numbers and quality; 22 head of cattle and 58 sheep having been offered for sale, of which seven head of cattle and 51 sheep found purchasers. The following is a list of the stock offered for sale and sold:—W. Oliver, 2 head, sold to William Hall; A. Laurie, 1 head; Wm. Hall, 7 sheep; Robert Pringle, 1 head; Peter Staudler, 1 head, sold to G. Loyd; A. Marshall, 20 sheep, sold to Wm. Hall; J. Patterson, 3 head; J. Wilkins, 2 head; T. Ballingal, 1 head, sold to J. Roberts; James Baikwell, 1 cow, sold to J. Roberts; Geo. Beamer, 1 heifer; S. Bucknel, 1 head; John Pringle, 1 yoke of oxen; James Scott, 1 head, sold to Wm. Hall; John Edgar, 8 sheep, sold to G. Kyle; John Mitchell, 2 head; John Robson, 1 cow; J. S. Biggar, 1 head, sold to P. E. White; H. Currie, 4 sheep, sold to Wm. Hall; H. Vrone, 7 sheep, sold to Wm. Hall; G. Anderson, 12 sheep, sold to Wm. Hall; John Guthrie, one head.

GUELPH CATTLE FAIR.—The monthly cattle market at Guelph on Wednesday, the third of February, was, on the whole, successful, and the buying brisk. Not many young cattle were exhibited, but such as were brought in sold at a fair price. Very little was sold by the weight, but the prices ranged from 3½ to 5c per lb. live weight, or from \$3 50 to \$5 per cwt. In order to give an idea of the prices given for different kinds of cattle we quote a few of the sales made. Edward Macdougall, Erin, sold one steer to W. Booth, of Minto, for \$44; Walter Laing, Nassagaweya, six head fat cattle to Edward Lemon, Toronto, \$271; Edward Macdougall, Erin, four steers, at \$150 for the lot, to Collard & Dean, Toronto; Moses Reist, Waterloo, one steer, to William Head, of Galt, at \$10; William Head also bought 51 head of cattle, averaging \$15 each; J. Orme, Puslinch, to George Hood, Guelph, 1 head, at \$255 for the lot. \$30 was the ruling price paid for good heifers, or \$1 per dressed cwt. Mr. Duncan Morrison, Nassagaweya, sold two cows and a heifer for \$141.

Corn sells in Texas at 10 cents a bushel.

The corn crop of the United States for 1869 is reported at 905,178,000 bushels.

The number of cattle slaughtered this year in Chicago is 23,291, against 35,116 last year.

Mr. D. McMillan, of Xenia, Ohio, last year sold over \$17,000 worth of Short-Horns, at prices averaging over \$675 per head.

Minnesota pays ten dollars apiece for wolf scalps, and in the past year has expended ten thousand dollars in such purchases.

The Clerkenwell Emigration Society are making active preparations for aid in sending emigrants to Canada during the present year.

A correspondent of the London *Field* recommends the importation of black ferrets into Australia, to abate the alarming increase of rabbits in that country.

The County Council of the County of Hastings proposes to establish a Chair of Practical Mining and Agricultural Chemistry in the Albert University, Belleville.

There are two potatoes on exhibition at Boston, of the variety known as Breeze's "King of the Early," the price of which are \$50 each. They were raised from seed in Vermont.

In Ireland farmers are complaining bitterly of the losses sustained by disease in the potato; whether in the house or in the pit, decomposition has been rapid. In many cases still, the hant is gone.

The wool crop of New York State is about 17,000,000 pounds, which is principally grown in Washington, Rensselaer, Genesee, Livingston, Ontario and Steuben counties—the first named leading off with 700,000 lbs.

EARTH SRAWAGE.—The military authorities here have established the earth closet system in connection with the barracks, and invite, by notices posted around the market, the attention of farmers, with a view to the sale of the refuse for fertilizing purposes.

The *Mark Lane Express*, speaking of the wheat crop of 1868, says "it has been the largest and best growth of wheat known during the present century," and estimates that "as a whole, the entire world has had a good gathering of the staple food of the human race."

At a meeting of the Kingston Board of Trade recently, the committee recommended free toll both in city and country, as large quantities of grain and other products which naturally ought to find their way to the city, are now taken to other ports, and as the imposition of tolls seriously affects the trade of the city generally.

At a recent meeting of the Mohawk Farmers' Club a member stated that as an experiment he marked off equal strips of land applying different manures to each. Horse manure to one, cow manure to another, the sweepings of a barn-yard on a third, and leached ashes on a fourth. The last produced the best effect on the crop.

Mr. Stephen White, Reeve of Raleigh, informs the Chatham *Banner* that he has purchased a car load of seed grain for the Raleigh Agricultural Society, from the East, viz: 250 bushels Barley, 50 bushels Crow Peas, 80 bushels Golden Vne, and about 100 bushels oats. This seed has been selected from farmers of the best stamp, and Mr. W. thinks it will prove the best lot ever brought into the township.

Apiary.

More About Wintering Bees.

I said in a former article, to winter bees successfully, one should first understand what is the natural condition of bees during winter; then winter so as to secure that condition, and nothing further is required.

I will now say, the natural condition of bees during winter is a semi-dormant state—a sleepy stupid condition. I will also give several reasons why a semi-dormant state is a natural one. First, it is a state or condition in which the least amount of food is required; hence in this state their bodies become less distended than in any other, and the excrements are more easily retained. Second, a semi-dormant state is secured at a temperature well calculated to carry off by evaporation the watery substance from their bodies, which secures a more healthy condition of the stock. Third, the temperature being always above the freezing point, the bees are able to reach any part of their hives at any time for food. Fourth, bees wintered in a semi-dormant state always come out in the spring healthy and vigorous. This fact alone is sufficient to prove it to be a natural condition for winter. How then may it be secured? Says one, "I have a room in which if I put thirty or forty stocks it is all right; but if I have only eight or ten in it, then it is all wrong, for it is too cold." Says another, "I find the same difficulty in constructing a place to winter bees; if I make it warm enough for half a dozen stocks, it is too warm for thirty or forty." Allow me to say that such wintering places are not the thing, though they may be better than wintering out of doors. A properly constructed wintering place for bees, though it may be large enough to winter five hundred stocks in a semi-dormant state, yet one stock would winter in the same place equally well. Such a place is nothing more nor less than an underground cellar.

As regards the dimensions, I may say, build large enough; you cannot spoil it by building too large, but you can spoil it by building too small. Wall it up with a hollow brick wall. Cover the bottom with water-lime as you would a cistern, it will become as hard as stone. Let it be at least eight or ten feet high. Twenty by thirty is a good size, and would winter from one to two hundred stocks without ventilating; and if ventilated would winter five hundred stocks. In such a cellar the bees are not affected by the changes of weather, and may remain there until they can fly freely in the spring. Such a cellar will always be found convenient for all purposes for which a cellar is required, when not occupied with bees, and when not filled with bees may be used for other purposes.

I shall lay out for feed, for my pony, this winter, more than his head is worth; and the profit derived will be the luxury of riding. Every ten stocks of Italian bees I winter, in the spring will be worth more than the pony, and require no outlay for feed and tending; and the luxury in the form of surplus honey taken from them last fall, is fully equal to the luxury of riding, and quite as profitable.

Therefore I say keep bees, and provide them with good winter quarters.

J. H. THOMAS.

Brooklin, Ont.

Rural Architecture.

Roofing Materials for the Farm.

The rising generation of Canadian farmers are destined to see a great revolution in the covering of the roofs of farm and other buildings. At present split pine and cedar shingles (very few of the latter) are all that will be looked at, or, indeed, are come-atable in the back country. In the front townships sawed shingles, also cut from pine and cedar, are becoming common; but with our pine forests all prospects of pine shingles are vanishing, and we must early look to some other material.

What that material is to be is the question. In those districts of the old country where thin flagstones are to be had, that material has been extensively used. When good, and such as will stand the alternations of the weather, flags form a first-class roof, but they are heavy, and require a corresponding strength in the timber to support them, and are a most expensive class of covering. As we have no such formations in Canada, we need not trouble ourselves about them; the fact is merely mentioned to show what is done elsewhere.

Tiles made from baked earth come next, and we strongly suspect that it is to these our attention must be turned. Being of course incombustible, they form a safe roof, but they are expensive and heavy, and require a strong timber work to support them. They must be laid in mortar, to keep out the snow and the drift of the rain, and they must be laid in a steep incline. Tile roofs are seldom less than one quarter pitch, the rafters at a right angle at the peak. Tiles are made of various shapes, but the most common are small flat oblong pieces of baked pottery ware, coarse in the grain, not glazed. Each tile is hung to the roof by one or two wooden pins, which are made to project from the under side, the pins being driven through from the upper side until they are level with the surface, so as to form no impediment to the next layer. All tiled roofs are formed of the usual rafters, with slats or strong laths nailed across them at such a distance that each row of tiles hangs by their pins, so as to cover the previous row far enough to prevent the back flow of the rain in its passage

down the roof. Some tiles are made with a projection to answer the purpose of the pins, but in continuously machine-made tiles holes and pins are necessary. As each row of tiles is hung, the part to be covered by the succeeding tile is plastered with mortar, which is cut or scraped off even with the edge of the tile; the joints are all baked, and when finished there is no better roof for effective purposes than a tiled roof; but they are subject to some drawbacks. They are expensive, and require skilled labour to put them on; they are heavy, and a strong frame is necessary to support them; they must be made of so strong a clay as not to chip or shiver with the frost, and they must not travel too far for fear of breakage. In the old country, even on their good roads, tiles are seldom carried farther than four or five miles. This kind of tile is made by machinery, like drain tiles, but flat instead of circular. The clay must be equal to pottery clay, and one that varieties sufficiently to give resistance to the frost, whilst at the same time it must be impervious to the wet. Almost all our Canada clay would have to be washed and treated in a proper fineness and freed from iron. Limestone spoils all baked clay.

There is a cheaper kind of tile, called pantiles, used in the old country; these are waved, and curved on one edge, so that in laying them the curved edge of one covers the straight edge of the next, and no break of joint is required. These pantiles are also laid in mortar, and where made of good materials and of sufficient strength, form a most excellent roof. Being all curved, they form a kind of series of spouts, extending from the top of the roof to the bottom, each channel carrying its own quota of rain to the eaves. For covering farm buildings in the old country they dispense with the mortar; but for all house purposes the mortar is necessary. Many old houses in London, England, are pantiled.

There is another kind of tile, heavier and stronger, flat, with the edges turned up, and the edges are covered by narrower tiles fitting one into the other. These tiles, like all others, lap over one another, but they do not break joint. Unlike the pantiles, the joints are covered by a separate formation. None of the tiled roofs will bear people on them with safety, and one of the most serious offences which boys can commit where they are used, is climbing on and over the roofs.

All tiles are burned in kilns, like bricks. Sometimes when bricks are burned in clamps (as is usually the case in Canada) the tiles are burned in the interior of the kiln, and near the arches, where they will be exposed to a vitrifying heat. They are packed in sixes on their edges, and each separate parcel angling a little over the others, so as to prevent slipping and crushing.

We are not far from the tiling age, and in a very little while tile kilns will be a very common institution. We shall leave other materials of roof covering for a future occasion.

Household.

Preserving Ice.

It would be well if those farmers who intend to make butter while grass is plenty, took a little pains to save some ice for summer use. The ideas on the subject of ice houses have been greatly modified of late years, and it is found that ice can be kept just as well in any building as in an expensively constructed ice house. Fix up a corner 12 feet square in the woodshed, or any other outbuilding that can be spared, or put up a small house near the dairy for the purpose. It may be made by nailing rough boards close together on upright posts on the top of the posts lay a sill, and put poles or boards across from wall to wall; then put on the rafters make a pent roof. Fill the space between the poles and roof with straw, cover the floor of the building, which may be bare earth, with first about a foot of sand, then lay rails or poles on it, and cover them with a thick layer of straw, cut your ice in blocks of about 2 feet square, and pile them up on the straw, as closely packed together as you can, filling up the spaces with pounded ice, and pour in some water to make it solid. Leave a space of about two feet between the wall and the ice all round, and when the ice is all in, fill that space with clean dry straw, tramped in; cover the top with loose straw, and have a pipe through the roof for ventilation. When ice is to be taken out, shut the door when you go in, remove the straw on top of the ice, take out a block and cover up with straw again before opening the door to take out the ice. Some prefer to have the house made partly in a hill side facing the north, with the roof only above ground. Stone walls are preferable to boards, but the main thing is to have straw enough; good rye straw is best; clean chaff is still better, if enough can be had; sawdust or tan bark will answer the purpose of protecting ice equally well, and would be best if they can be readily procured, as the same material can be used several years in succession, while straw requires to be renewed with each crop of ice put in the house. If the building is too much exposed to the sun, plant some evergreens on the south side, or place green pine boughs on the roof in summer. Where the cellar is large and but little ice is needed, a small ice room may be made in it, the floor to be dug 18 inches below the level of the cellar, and the walls made of brick one brick thick; the poles on which the floor of straw is laid are placed at the level of the cellar floor, leaving the space below for drainage of the water from ice that may melt, and the ice, when packed in, need only have a space of one foot between it and the walls, to be filled with chaff, sawdust or straw. There

must be a window for ventilation, which may also be made large enough to allow of the blocks of ice being put through it when filling up the room. The goodness of the ice will depend greatly on the time it is taken into the ice house. If the ice is very hard and solid, and the weather has been very cold for some time previously to its being put up, it will keep much better than if it is taken up in mild weather, or after a thaw has set in. The lower the temperature at which ice is formed, the longer it will keep.

Kenwyn Farm.

J. M.

Vinegar from Maple Sap.

To the Editor.

Sir,—I noticed in your December number an article headed "Economic Vinegar," the writer of which seems to have forgotten that vinegar could be made of other material than apples or cider. He says that "in a new country, where fruit is scarce, it becomes a matter of no small importance that all should be made the best of. We all like good pure vinegar, and can be sure of it only when manufactured from apples." I think every back settler, living on timbered land where maple timber is growing, has ample means for making equally as good if not better vinegar than can be made from cider; that is, vinegar made of maple sap, which flows freely in April and May. Take the last runs after the buds begin to swell and the sap becomes unfit for sugar; save up all the remnants of sap, and boil, say two into one, and strain into a tub or vessel of some kind to cool, then add yeast sufficient to cause fermentation. After fermenting, remove, and put it in a vinegar cask, leaving all settleings out. Set in a warm place. The bung should be left out, or what is better, cut a square hole large enough to dip out vinegar when wanted, cover with thin cloth and a piece of board. Some brown paper should be added to make mother, or you can procure some from your neighbour's vinegar barrel, and add to your vinegar, in order to keep up a plentiful supply. The barrel should be filled by the addition of suitable materials as vinegar is taken out, such as cold tea with a little sugar, or any sweet slops. The juice of the rhubarb plant is excellent food for vinegar. Our vinegar began to get low last year on account of having to build. My wife went to the garden and got some rhubarb stalks, sliced them fine, and soaked them in soft water over night, then drained off the liquor, and added one quart of molasses to three or four gallons of liquor, and she says she never had better vinegar than it made.

A FARMER.

PREVENTION OF SHRINKING IN FLANNELS.—A correspondent of the London Field says:—"In washing flannels, or other woollen articles, have the suds ready prepared, by boiling up and so dissolving small pieces of soap in rain water, without soda; but do not use the suds when boiling; let them be lukewarm only when the articles are put in.

Theannels should not be rubbed with a large piece of soap, nor should the material itself be rubbed, as in washing linen, &c.: the fibres of the wool contain numberless little hooks, which the rubbing knots together; hence the thickening of the fabric and consequent shrinking in dimensions. Well sluice the articles up and down in plenty of suds, which afterwards squeeze (no wring) out. The American clothes-wringers (consisting of a pair of india rubber rollers between which the clothes pass) are a great improvement upon hand labour, as, without injury to the fabric, they squeeze out the water so thoroughly that the article dries in considerably less time than it otherwise would do. After rinsing, squeeze out the water, and dry in the open air, if the weather is such as to admit of the articles drying quickly; if not, dry in a warm room, but avoid too close proximity to a fire. Let any dust or mud be beaten out or brushed off prior to washing."

Poetry.

CANADIAN FARMER'S SONG.

BY W. G. MONCRIEFF.

To make our farm a tidy one,
We'll heart and hand combine;
The work, my dear, is well begun—
The land is yours and mine.
The land is yours and mine, goodwife,
The land is yours and mine;
At home we battled sore for life,
Without one cheering sign.

Our house is small and rudely built,
Its furnishing not fine;
But what care we for gaud or gilt?
The land is yours and mine.
The land, &c.

I chop the trees and clear the soil
From morn till starry shine;
And never grudge the weary toil—
The land is yours and mine.
The land, &c.

The frost is keen, the sun is hot,
There's no breeze from the brine;
But we can face our chosen lot—
The land is yours and mine.
The land, &c.

I yonder wrought with clouded brow,
Like others in my line.
It's pleasant now to guide the plough;
The land is yours and mine.
The land, &c.

Around our wee things in their beak
Our hearts delighted twine.
It cannot fall; they shall be fed—
The land is yours and mine,
The land, &c.

You'll work within and I afield,
Attending horse and kine;
Tis all our own the acres yield—
The land is yours and mine.
The land, &c.

It's here a man a man can be,
And need not cringe or whine;
There's none to fear and none to fee—
The land is yours and mine.
The land, &c.

Heap on the wood this wintry night,
And crackle let the pine;
We can afford both heat and light—
The land is yours and mine.
The land, &c.

THE CLEAR VISION.

BY JOHN G. WHITTIER.

I did but dream: I never knew
What charms our stormiest season wore—
Was never yet the sky so blue,
Was never earth so white before
Till now I never saw the glow
Of sunset on your hills of snow,
And never learned the bough's de-light
Of beauty in its leafless lines.

Did ever such a morning break
As that my eastern windows see:
Did ever such a moonlight take
Weld photographs of shrub and tree:
Kang ever bells so wild and fleet
The music of the winter street:
Was ever yet a sound by half
So merry as your school-boy's laugh?

O Earth, with gladness overfraught,
No added charm thy face hath found.
Within my heart the change is wrought:
My footsteps make enchanted ground
From couch of pain and curtained room.
Forth to thy light and air I come,
To find in all that meets my eyes
The freshness of a glad surprise.

Fair seem these winter days, and soon
Shall blow the warm west winds of spring
To set the unbound rills in tune,
And hither urge the bluebird's wing.
The vales shall laugh in flowers, the woods
Grow misty green with leaping buds,
And violets and wind flowers sway
Against the throbbing heart of May.

Break forth, my lips, in praise, and own
The wiser love severely kind;
Sluce, richer for its chastening grown,
I see, whereas I once was blind.
The world, O Father, hath not wronged
With loss the life by Thee prolonged;
But still, with every added year
More, beautiful Thy works appear.

As Thou hast made Thy world without,
Make Thou more fair my world within;
Shine through its lingering clouds of doubt;
Rebuke its haunting shapes of sin.
Fill, brief or long, my granted span
Of life with love to thee and man.
Strike when thou wilt the hour of rest,
But let my last days be my best.

Miscellaneous.

Agriculture in Schools.

We are inclined to think that a knowledge of Agriculture as a science might be advantageously introduced into our common schools in country districts, through a simple and concise reading book, treating upon the composition and cultivation of the soil, the primary laws of nature, and the points of excellence in each and every breed of farm stock; together with some insight into Geology, Botany, Entomology, Meteorology, and perhaps Animal Physiology. The great majority of the children taught in such schools are likely in the future to become farmers, or wives of farmers, and it would be well to bring their powers of observation into activity, and turn them into such a channel as would have a good effect in showing them the usefulness and dignity of their future calling.

Farm Well—it Pays.

As a general rule, no man should attempt to cultivate more land than his capital will enable him to fully occupy with profitable stock and well cultivated crops. A farmer with a large farm half cultivated and half stocked, is like a merchant with a large and costly store in which to show a small stock of goods. The rent, in the shape of interest on dead capital for outside show, eats up more than the profits made, and his labour goes for nothing beyond a bare living, while he gets poorer each succeeding year.

We know of a farmer, not far off, who owned one hundred acres of a farm. He sold half of it a few years ago, and has since then applied to the remaining fifty acres the same amount of capital and manure that he formerly expended on the hundred. He finds he now actually makes more money from fifty than he did from one hundred acres, as his crops have doubled, in yield per acre, while his labour is greatly lessened, and his stock being better fed and cared for, gives larger returns, both in money and manure.

Farmer's Creed.

We believe in small farms and thorough cultivation.

We believe the soil loves to eat as well as the owner, and ought, therefore, to be well manured.

We believe in going to the bottom of things, and, therefore, in deep ploughing and enough of it. All the better if it be a sub-soil plough.

We believe in large crops, which leave land better than they found it—making both the farm and farmer rich at once.

We believe that every farm should own a good farmer.

We believe that the best fertilizer of any soil, is a spirit of industry, enterprise and intelligence—without this, lime, gypsum and guano, will be of little use.

We believe in good fences, good barns, and good farm-houses, good orchards, and children enough to gather the fruit.

We believe in a clean kitchen, a neat wife in it, a clean cupboard, a clean dairy, and a clean conscience!—*Dixie Farmer.*

The Road to Poor Farming.

1. Invest all your money in land and run in debt for more.

2. Hire money to stock your farm.

3. Have no faith in your business, and be ever ready to sell out.

4. Buy mean cows, spavined horses, poor oxen and cheap tools.

5. Feed poor hay and mouldy cornstalks exclusively, in order to keep your stock tame; fiery cattle are terribly hard on rickety waggons and ploughs.

6. Use the oil of hickory freely whenever your oxen need strength: it is cheaper than bay or meal, and keeps the hair lively, and also pounds out all the grubs.

7. Select such calves for stock as the butchers shun—beauties of runts, thin in the hams, and potbellied; but be sure and keep their blood thin by scanty herbage; animals are the safest to breed from that have not the strength to herd.

8. Be cautious about manufacturing manure; it makes the fields look black and mournful about planting time; besides, it is a deal of trouble to haul it.

9. Never waste time by setting out fruit and shade trees; fruit and leaves rotting around a place are unhealthy.—Dixie Farmer

Because a farmer cannot build a fine barn or stable for the shelter of his animals is not a sufficient reason why he should allow them to go without any shelter.

Tree Clubs.—If the enterprising and intelligent men of every town and village in Canada, that own lots, would form themselves into a "tree club," and each plant, care for, and properly protect, for one year, a few choice forest trees along the street fronts, they would add wonderfully to the beauty of the place, and receive a hundred fold interest for their time and money in the increased value of the property in future years, as well as the blessings of the children and stranger for the cool and grateful shelter afforded from the rays of our summer sun.

A SMALL FARM IN CALIFORNIA.—In a recent conversation with a farmer from California, he spoke of his 1,200 acres as a small farm, and his 200 acres of wheat as a small affair. Some of his neighbours had 5,000 acres of wheat, and the yield was from 20 to 40 bushels to the acre. The highest yield he had known was 83 bushels to the acre. The fencing of land was getting so common that cattle could not be kept as profitably as formerly, and he had come East to invest in Cotswold sheep. To an eastern man, the terms small and great have a very indefinite application in that country.—American Agriculturist.

AN AGRICULTURAL PUZZLE.—A correspondent thus humorously criticises the phraseology in common use amongst agriculturists:—I perceive from your paper that several of your correspondents are in the habit of sowing their land to wheat and timothy at the same time. But if it be correct to sow land to wheat, it must also be right to feed horses to oats. Nevertheless, a further perusal of your columns has convinced me that the practice of farmers is directly the reverse, for they invariably feed oats to their horses. This, however, must be an error, for it is surely more natural to feed horses than to feed oats.

STEAM IN AGRICULTURE.—It is estimated that there are now at work in England about 300 steam ploughs, and that these ploughs are securing some remarkable effects in English agriculture. Half a million acres, perhaps more, have been deeply and thoroughly pulverized by this style of ploughing. It is said that a steam plough, penetrating to a depth before unknown, and moving with a rapidity of four miles an hour, breaks up and disintegrates the soil four times more than the ordinary horse plough moving at the rate of two miles an hour. By the depth to which the plough penetrates, new elements are brought into the working soil, and surprising crops are the consequence.

Markets.

Toronto Markets.

"CANADA FARMER" Office, Feb. 12th, 1869. FLOUR AND MEAL.

The market is on the decline, and there is but little doing. We quote wholesale prices—

- Flour—No. 1 Super, \$4 70 to \$4 80
Oat Meal—\$6 to \$6 25
Corn Meal—\$3 40 to \$3 75
Bran, per ton—\$19.

GRAIN.

Wheat—The market, since our last review, has been steadily on the decline. Spring Wheat yesterday touched as low as 9 1/2 c. in store. The receipts here are very large, averaging 9,000 bushels daily. The receipts on the street market, even while the sleighing lasted, were very light. Only one or two loads coming in daily. To-day Spring and Midge Proof sold on the street at 9 1/2 c. A few loads of white Fall Wheat sold at \$1 to \$1 05, the latter price having been only paid for choice.

Oats—The market has been firm during the week, and a slight advance has been established. Car lots are now worth 3 1/2 c. on the track.

Barley—The market has been steady, with, if anything, an upward tendency. Sales have been made of car lots at \$1 32 delivered, and \$1 30 on the track. On the street market \$1 35 was paid for a few loads today.

Rye—The market continues quiet and nominal. There has been nothing doing, except on street market, where a few loads sold at 53 c. and 53 c.

Clover—No sales of car lots. A few loads sold on the street market at 7 c.

Clover Seed—Buyers here are paying for small lots 60 c. to 65 c. Some car lots sold during the week at \$6 50.

Timothy Seed—Buyers are paying for lots on the market \$2 50 to \$2 75.

PROVISIONS.

The market has been quiet and steady. We quote wholesale prices:

- Butter—Dairy, choice, per lb. 22c to 22 1/2 c.
Cheese—New, in lots, 12 1/2 to 13c.
Pork—Mess, No. 1, per bbl., \$26 50 to \$27.
Bacon—9c 1/2 to 14 1/2 c.
Hams—In salt, 12c to 13c; sugar cured and smoked, 13c to 14c.
Lard—16c to 18c.
Eggs—In lots, 20c to 21c.
Dressed Hogs—\$9 to \$10.

THE CATTLE MARKET.

Beef—The market has been well supplied, and a good many sales of first-class cattle have taken place, selling at per 100 lbs dressed weight from \$5 to \$8, according to quality.

Sheep—\$4 to \$7 each.
Calves—In good demand, and anxiously enquired for; from \$3 to \$8 each.

HIDES AND WOOL.

Hides, 6c to 8 1/2 c. Calveskins, 10c to 20c. Sheepskins, 40c to \$1 25.

HAY AND STRAW.

Hay—Market has been well supplied, with a steady demand, at from \$12 to \$17.
Straw—Selling at from \$6 to \$7 50.

London, Feb. 9.—White Wheat, \$1 00 to \$1 20c; red tall wheat, per bush. 90c to 95c; spring wheat, 85c to 98c; Barley, \$1 20c to \$1 35c; Peas, 70c to 80c; Oats, 47c; Corn, 60c to 65c; Dried wheat, 55c to 60c; Rye, 75c to 80c.

Guelph, Feb. 9.—Flour, \$2 50 to \$2 75; Fall Wheat, per bush., \$1 to \$1 05; Spring Wheat, 90c to 92c; Oats, 50c to 60c; Barley, \$1 15 to \$1 25; Peas, 60c to 84c; Hay, per ton, \$10 to \$13; Turnips per bush., 12c to 14c; Eggs per dozen, 20c to 22c; Butter, dairy, 20c to 22c; butter, store packed, 18c to 20c; butter in rolls, 15c to 20c; Apples per bag, 75c to \$1 12 1/2; Dressed Hogs, \$8 to \$9 50.

Hamilton, Feb. 9.—Fall Wheat, per bush., \$1 05 to \$1 10; Spring Wheat, \$1 15; Barley, \$1 20 to \$1 25; Oats, 48c to 60c; Peas, 80c to 85c; Corn, 65c to 70c; Potatoes, per bag, \$1 to \$1 13.

New York Produce Market.—Flour—Unsettled and lower; receipts 4,300 bbls; sales 5,900 bbls at \$5 65 to \$6 25 for superfine State and Western; \$6 70 to \$7 05 for common to choice extra State, \$6 45 to \$7 25 for common to choice extra Western.

Flour—Quiet at \$5 25 to \$7 30.
Wheat—Firm; receipts 1,300 bushels; sales 31,000 bushels at \$1 63 for No. 2 Spring in store, \$1 60 to \$1 61 for No. 1 and 2 do in store and delivered.

Rye—Heavy; sales at \$1 40.
Corn—2c to 3c better, with a fair speculative demand; receipts 9,000 bushels; sales 66,000 bushels at 90c to 92c for new mixed Western; \$1 01 to \$1 03 1/2 for old in store.

Barley—Quiet and steady; sales 3,500 bushels Canada Western at \$2 16.
Oats—Dull and firmer; receipts 1,700 bushels; sales, 68,000 bush at 75 1/2 c to 76c for Western in store.

Pork—Lower at \$32 60 to \$23 for new mess; \$32 to \$32 25 for old do.
Lard—A shade lower at 19 1/2 c to 21c for steam; 21c to 21 1/2 c for kettle-rendered.

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DAIRYMAN'S GOODS.

YATS, HEATERS, PRESS SCREWS, HOOPS, (L.) CHERRY, CANS, &c., &c.,

OF the latest improved styles, and of the best quality, sold cheaper than any house in the trade.
SMALL YATS, complete, suitable for thirty cows and under, sent to any address in Canada, free from rail expenses, for thirty dollars. Send for price list, and address
H. PEDLAR,
v1-2-11. **Box 100, Oshawa.**

**GENUINE IMPORTED
NORWAY OATS.**

SAMPLES SENT FREE TO FARMERS

FROM 100 to 130 bushels grown to the acre, weighs from 40 to 45 pounds to the bushel.

This Oats has been grown on every variety of soil, and in every State of the Union, with the most perfect success.

The grain is very large, plump and handsome, has a remarkably thin husk, and ripens earlier than the common varieties.

The straw is bright, clear, stout, and not liable to lodge, is perfectly clear of rust, and grows from 1 to 5 feet high.

We have both the White and Black Norway, both the same price and equally productive.

We will send one quart of the above Oats to any address, post paid, for..... \$1 00
Two quarts, post paid..... 2 00
One peck sent by express or freight..... 3 00
Half bushel, 20 pounds..... 5 00
One bushel, 40 pounds..... 10 00

CAUTION. We wish it distinctly understood that this is not a light oats, weighing 28 to 32 lbs., raised in New England, and sold under the name of Norway, but imported seed, every bushel guaranteed to weigh 40 lbs., or the money refunded.

Samples of both kinds sent free for a three cent stamp.

Also Circulars and Testimonials.

Address all orders to **N. P. BOYER & CO.,**
v1-2-11. **Parkesburg, Chester Co., Pa.**

SEEDS! TREES!! PLANTS!!!
(ESTABLISHED 1850.)

JOHN A. BRUCE & CO.,
Seed Merchants and Nurserymen.

OFFICE and Warehouse, 52 King Street West. Nurseries, Green-houses and Graperies, Ferguson Avenue. Seed Farm, Main Street East,

HAMILTON, ONTARIO.
Descriptive Priced Catalogues furnished on prepaid application.
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GRAPE VINES FOR SALE.

ALL the best and earliest hardy sorts furnished at low rates by the hundred or thousand. Particulars wishing exotic sorts can be supplied with fine plants true to name.

v1-2-11. **D. W. BEADLE,**
St. Catharines.

NEW ROSES.

FOR a choice collection of the best New Roses send to the **St. CATHARINES NURSERIES.**

v1-2-11. **D. W. BEADLE,**
St. Catharines, Ont.

Philadelphia Raspberry Plants

THIS is the hardiest and most productive Red Raspberry in cultivation. Strong plants for sale by the dozen, hundred or thousand.

Also, fine plants of the Clark, Franconia, Herodotus, Naomi, Imperial, Davison's Thornless and Mammoth Cluster, at the

v1-2-11. **St. Catharines Nurseries,**
D. W. BEADLE.

SENT FREE TO EVERY BEE-KEEPER IN CANADA, A DESCRIPTIVE CIRCULAR AND CUT OF

**S. H. MITCHELL'S
PATENT COMBINED HIVE**

AND
BEE HOUSE.

THE MOST PERFECT,
THE MOST USEFUL,
THE MOST DURABLE
AND ORNAMENTAL HIVE

Ever offered to the Public.
Address, **S. H. MITCHELL,**
Aptlarlan & Market Gardener,
v1-2-11. **St. Mary's.**

**CANADA PERMANENT
BUILDING & SAVINGS SOCIETY**

Paid up Capital,..... \$1,000,000
Funds Invested..... 1,900,000

OFFICE—MASONIC HALL, TORONTO STREET,
TORONTO.

SAVINGS BANK BRANCH.
Deposits received daily. Interest guaranteed at 5 and 6 per cent. per annum, payable half yearly.

LOANS ON REAL ESTATE,
For any term, up to 15 years, on favourable terms.
J. HERBERT MASON,
v1-2-11. **Secretary and Treasurer.**

**FRUIT & ORNAMENTAL TREES,
FOR SPRING 1899.**

STANDARD FRUIT Trees, for Orchards,
DWARF TREES, for gardens,
GRAPE VINES—Old and new varieties
STRAWBERRIES, and other small fruits; best new and old sorts.

DECIDUOUS ORNAMENTAL Trees.
EVERGREEN TREES,
FLOWERING SHRUBS and Plants,
ROSES, PARONIES, DAHLIAS, etc., superb collections.

GREEN-HOUSE and BEDDING PLANTS.
Our general stock is the largest and most complete in the country. Prompt and careful attention given to every order, large or small. Catalogues containing full information, supplied as follows:

No. 1. Descriptive Catalogue of fruits, 10c.
No. 2. " " Ornamental trees, &c. 10c.
No. 3. " " Greenhouse plants, &c., 5c.
No. 4. Wholesale, none.

ELLWANGER & BARRY,
Mount Hope Nurseries,
(ESTABLISHED 1840.) **ROCHESTER, N. Y.**

TO CHEESE MAKERS.

HAVING taken the FIRST PRIZE at the Provincial Show in Hamilton last year for CHEESE PRESSES, GREWS AND HOOPS, I am now prepared to furnish everything of the best description required for the manufacture of Cheese, and at the lowest rates. Orders promptly filled.

v1-2-11. **R. WHITELAW, Oxford Foundry,**
Beachville.

LAND PLASTER

OF THE BEST AND STRONGEST QUALITY manufactured at Paris, Ontario; and sold at the lowest price, in Bulk, in Barrels, or in Bags, by

THOMAS W. COLEMAN,
Paris, Ontario.
v1-2-11.
January 13, 1899.

**GARDENER WANTED,
TO LOOK AFTER A GARDEN AND GREENHOUSE.**

Apply to **JAS. GRIFFIN,**
Nurseryman and Florist,
London, Ont.
N. B. Reference required.
v1-2-11.

WANTED, A FARMER,

to take the working direction of a Farm, near Montreal. Must be familiar with Farming in every department, growing root crops, treatment of grass lands, care of thorough-bred stock, &c., &c.

A married man preferred, with wife competent to take charge of a Dairy. Address, with references as to ability and character,
v1-2-11. **S. SHELDON STEPHENS, Montreal.**

**FOR SALE,
A three-year old Devon Bull.**

THOROUGH-BRED.
Bred from the Stock of J. Moore, Etobicoke.

v1-2-11. **SAM. BIGHAN, Islington P. O., Ont.**

LAMB'S
SUPER-PHOSPHATE OF LIME,
 \$40 PER TON.

PUT UP IN BARRELS CONTAINING ABOUT 225 lbs. DELIVERED FREE AT RAILWAY STATION, TORONTO.

FINE BONE DUST, \$27.50 PER TON.

HALF INCH BONE DUST, \$22.00 PER TON.

LAMB'S
SUPER-PHOSPHATE OF LIME,
 MATURES CROPS FROM 10 TO 15 DAYS EARLIER, AND INCREASES THE YIELD 100 PER CENT.

TESTIMONIALS:

(FROM THE HON. GEO. BROWN, TORONTO.)

I certify that I purchased this spring, from Messrs. Peter R. Lamb & Co, Ten Tons of Super-Phosphate, and used it on my farm, Bow Park, near Brantford. I have found very great advantage from its application to the Indian Corn and Oat Crops, and the young grass has been also much benefited by it.

GEORGE BROWN.

(FROM DANIEL WOODRUFF, ESQ., GREY, HURON COUNTY.)

I have great pleasure in testifying to the excellence of the Super-Phosphate I purchased from you this spring. I applied the article to clover, but not to the entire field, and I am sure that I am quite safe in saying that the clover crop was trebled where it was top-dressed with your manure. The rest of the field carried but a fair crop; in short, the thing paid.

To Messrs. Peter R. Lamb & Co., Toronto.

I am, yours very truly,

DANIEL WOODRUFF.

(FROM JAMES WALLIS, ESQ., PETERBORO')

GENTS.—In regard to your Super-Phosphate of Lime, I have great pleasure in testifying to its beneficial qualities to Root Crops and Vegetables in general. I put a small quantity on about a quarter of an acre of Turnips in the middle of a field, and a passer-by can easily distinguish the superiority of the crop in that part of the field. I purpose using it more extensively next year, as I consider it a most valuable manure, and as far as I am a Judge, the quality is good.

To Messrs. Peter R. Lamb & Co., Toronto.

I am, your obedient servant,

JAMES WALLIS.

(FROM WM. YOUNG, ESQ., WHITBY.)

GENTS.—The Super-Phosphate of Lime you sent me gave me great satisfaction; the greater part of it was sown on Barley, and when my neighbours, both east and west, had their crops flattened, so that some had to be cut with a mowing machine more exposed to the storm, was all standing good, so that I cut round the whole field with the reaper. I tried one barrel on Spring Wheat, which proved its good qualities, the wheat being stronger on that acre, and about four or five days earlier. I also tried an acre of Turnips, dugged all alike, and then I put on at the rate of one barrel per acre of the Super-Phosphate, which, from the first to the present, is quite superior to any of the rest of the field.

To Messrs. Peter R. Lamb & Co., Toronto.

I am, Gentlemen, yours respectfully,

WM. YOUNG.

(FROM WM. WHITELAW, ESQ., GUELPH.)

GENTS.—In reference to the Super-Phosphate of Lime purchased from you last spring, I have to state that I applied it on my Turnip Crop, and the result up to the present time is entirely satisfactory, as I shall have a large crop, but I will be enabled to state more fully hereafter as to actual results, as by way of experiment I have in the same field used barn yard manure and Bone dust—the latter at the same cost per acre as the Super-Phosphate—and also applied the Super-Phosphate both with and without manure of any kind, but if I should judge from present appearance, the crops will be decidedly best where Super-Phosphate has been applied.

To Messrs. Peter R. Lamb & Co., Toronto.

Yours truly,

WM. WHITELAW.

A MANURE EXPERIMENT.

To the Editor of THE CANADA FARMER:

SIR,—The subject of manures, and the merits of different kinds being frequently discussed through your valuable paper, I take the liberty of giving you the result of an experiment made by me last season on a field of turnips for the purpose of testing the qualities of different manures, a part of the field getting no manure of any kind. All the manures were put in the drill and ploughed under, and the various lots were sown about the same time, and received the same treatment through the summer. When taken up, a quarter of an acre of each lot was staked off and carefully measured, giving the following results. If taken by weight, the yield in each case would have been much greater:

Lot without manure of any kind produced at the rate of.....	760 bushels per acre.
Lot with 600 lbs. bone dust per acre, cost \$7 50.....	834 " "
Lot with 12 loads barn-yard manure per acre.....	550 " "
Lot with 350 lbs. super-phosphate of lime per acre, cost including freight, \$7 50.....	825 " "
Lot with 220 lbs. super-phosphate, 67 loads of manure per acre.....	635 " "

The super-phosphate was purchased by me from P. R. Lamb & Co., Toronto. As to whether it will pay to purchase these manures, I will leave your readers to draw their own conclusions.

GUELPH, March 22, 1867.

W. W.

FARMERS, REMEMBER THAT LAMB'S SUPER-PHOSPHATE OF LIME WILL
RIPEN YOUR CROPS FROM 10 TO 15 DAYS EARLIER AND INCREASE THE YIELD 100 PER CENT.

TRY IT.

Send in your Orders early to insure to have them fulfilled.

TERMS—CASH, TO ACCOMPANY ALL ORDERS.

PETER R. LAMB & CO.,
TORONTO.